

Cyberbullying on Facebook: Group composition and effects of content exposure on bystander state hostility

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Abstract

This study addressed the extent to which offensive cyberbullying content exists on Facebook and the extent to which bystanders that view cyberbullying content reported increased levels of hostile affect. Experiment 1 identified 200 open Facebook groups that contained offensive cyberbullying content. Group composition, in terms of group membership and participation, and the content within the groups, in terms of the number and content of posts, were analysed for gender differences and severity of content. Results from Experiment 1 highlighted the visibility of offensive cyberbullying material that is accessible to any member of the Facebook community. Given the prevalence for such content, Experiment 2 was designed to identify the extent to which exposure to cyberbullying content on Facebook would increase levels of state hostility (i.e., hostile affect), while also examining gender differences and controlling for trait hostility. Participants were presented with Facebook screenshots that contained either offensive or neutral Facebook screenshots and were asked to respond to questionnaires via self-reporting methods. Results indicated that exposure to offensive content led to an increase in levels of state hostility, particularly in those who had previously reported higher levels of trait hostility. Taken together, these findings suggest that not only is offensive material perpetrating cyberbullying behaviour prevalent and accessible to any Facebook member, but bystanders who view offensive cyberbullying content have the tendency to respond with increased levels of hostile affect post-exposure.

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1.0 Introduction

Cyberbullying is of increasing international concern. The suicide of Tyler Clementi in 2010, an 18-year-old Rutgers University student, was attributed to cyberbullying from his roommate and other students (Nies, 2010). Clementi's roommate had streamed a video online of Clementi engaging in sexual interactions with another male student without informing Clementi or the other male involved. This is not an isolated incident. Investigations into the suicides of Amanda Todd from Canada in 2012 (Lau, 2012) and Carolina Picchio from Italy in 2013 (Nadeau, 2013) revealed that these victims had been cyberbullied on the social networking website Facebook. Increased accessibility to the Internet and social networking sites has created an environment that fosters online relationships and communication. Consequently, this has also created a medium whereby people may easily bully and harass others. Cyberbullying has been defined as "...willful and repeated harm inflicted through the medium of electronic text" (Patchin & Hinduja, 2006, p. 152). Given the documented adverse effects on psychological well-being, several organizations have been set up to aid in an effort to prevent cyberbullying, such as 'NetSafe'¹ in New Zealand, the 'STOP cyberbullying'² in the United States, and 'Bullying UK'³ in the United Kingdom. Despite such attempts, the number of potential victims has increased with the increasing availability of digital devices and technology (Chen, 2010). Estimated rates of cyberbullying victimization range from 23% to 55% (Dilmaç, 2009; Li, 2006; TRU Research, 2012). With smartphones and access to social networking websites becoming more readily

¹ <http://www.netsafe.org.nz/> : Organization providing information about cyberbullying and internet safety.

² <http://www.stopcyberbullying.org/index2.html> : The first cyberbullying prevention program in North America, founded by cyberbullying research Parry Aftab. The website provides information on cyberbullies as well as intervention tools to report instances of cyberbullying.

³ <http://www.bullying.co.uk/> : A charity providing support for victims and information for the community.

available, not only is there is a need to understand their influence on communication styles, but there is also a need to study the psychological effects of their abuse. Accordingly, the aim of this thesis is to describe the composition of cyberbullying groups on the social networking website⁴ Facebook and the nature of cyberbullying content, in addition to determining the effects of exposure to cyberbullying content on aggressiveness in bystanders. Examining the prevalence of cyberbullying groups and nature of cyberbullying content among Facebook users and its potential psychological effects may help to inform subsequent intervention and preventative programmes designed to create safer online communities.

1.1 Traditional Forms of Bullying

The majority of research on the nature and psychological impact of bullying to date has focused on more traditional forms of bullying (e.g., Adair, Dixon, Moore, & Sutherland, 2000; Craig & Pepler, 1997; Finkelhor, Ormrod, Turner, & Hamby, 2005; Harris & Petrie, 2002; Olweus, 1993). Traditional bullying, or face-to-face bullying behaviour, has been defined as subjecting others to repeated instances of intentional and harmful behaviour (Olweus, 1993). A key component to traditional bullying is the existence of a power imbalance between the perpetrator and the victim (Olweus, 1993; Sullivan, 2000). Among children and adolescents, traditional forms of bullying typically occur in the vicinity of the victim's school—such as the playground or transport to and from school (Harris & Petrie, 2002; Olweus, 1993; Patchin & Hinduja, 2006; Sullivan, 2000). Abuse can be either verbal or physical (Olweus, 1993). Examples include a

⁴ A social networking website is a website that creates an online community for its members. To qualify as a social networking website, members must be allowed to create a personal profile page that allows them to share any given amount of information about themselves (e.g., location, contact information). Second, social networking websites must allow members to connect with other members with the intent to interact and share information and communication (Grabianowski, 2009).

fellow student spreading harmful gossip about others in the bathroom or deliberately tripping, punching, or pushing others.

1.1.1 Classifications of Traditional Bullying and the Prevalence of Victimization

There are three methods in which traditional bullying can be carried out by the perpetrator.

Sullivan (2000) classifies these methods as physical bullying, verbal bullying, and relational bullying. Physical bullying involves active transgressions between students, including behaviours such as hitting, kicking, punching, and spitting. This type of interaction should not be confused with playful teasing, fooling around, or any play that does not intend to harm.

Furthermore, any serious abuse, either sexual or physical, extends beyond the limits of bullying into criminal activity. The second method, verbal bullying, involves teasing, name calling, and hurtful statements said by one or more people. Bullying of that kind may take place within a group, such as children calling another child “fat” or “stupid.” Alternatively, this type of bullying may also be on a one-to-one basis. If verbal bullying escalates to serious threats of injury or death, then this is considered criminal behaviour. Relational bullying is the third form of traditional bullying classified by Sullivan (2000). Like verbal bullying, this is bullying of a non-physical nature using direct and indirect methods of harm. This form of bullying is different from the prior two methods because there are additional psychological components, such as exclusion and the manipulation of relationships. Bullies engaging in the relational form may spread rumours in order to ostracize someone else from a social group. Perpetrators of traditional bullying may employ one or more of the above listed methods to torment their victims.

Estimations of prevalence between the different traditional bullying types are dependent on age and how the three different bullying types are operationalized in research. For example, Harris

and Petrie (2002) found that being victimized through hurtful name-calling and teasing behaviour were common among a U.S. sample of grade 8 students, with 49.5% and 46.5% of students reporting that they were victims of these types of verbal bullying, respectively. Relational bullying was also a common method of victimization, with 34% of students reporting having been left out of activities. Being a victim to physical bullying was the least common, with 22% of the students reporting having been kicked or hit (i.e., physical aggression). Furthermore, a study using a similarly aged sample of 2,000 students in grades 6 through 8 produced comparable results in traditional bullying prevalence, with 29.3% of students reported being victim to relational bullying within the past 30 days (Hinduja & Patchin, 2010). The relational bullying behaviours reported included classmates trying to get other classmates to dislike another student and classmates spreading false rumours about one another. Verbal bullying victimization was reported by 28.7% of students and included behaviours such as being called mean names, being made fun of, and teasing. Behaviours that included hitting, kicking, pushing, or being shoved around (i.e., physical bullying) were reported by only 16.3% of students (Hinduja & Patchin, 2010). These studies tend to indicate that verbal and relational bullying methods are more common than physical methods. While much research has focused on the prevalence and nature of the different types of traditional bullying, much less is known about the extent and nature of cyberbullying.

1.1.2 Gender Differences in Traditional Bullying

Research on traditional bullying has also sought to identify if rates and types of victimization differ by gender. For example, in a 1983 – 1985 Norwegian study of 10,000 students in grades 4 through 7, Olweus (1993, 1994) found that males were more likely to be bullied through face-to-

face verbal and physical attacks than females. Other studies have also found that males are more likely to be subject to physical forms of bullying than females (Adair et al., 2000; Crick & Nelson, 2002; Nansel et al., 2001; Rigby & Slee, 1991). In addition, Olweus (1993, 1994) found that males were as likely as females to be socially excluded and be subject to rumours. Adair, Dixon, Moore, and Sutherland (2000) corroborated Olweus's finding in a study of bullying behaviours among a sample of 2066 New Zealand students in years 9 through 13. Specifically, results indicated that more males than females reported higher incidences of attacks on sexual orientation and name calling due to race/colour, instances of physical bullying, instances of stolen or broken property, and instances of being hurt due to sexual orientation.

In contrast to males, females tend to experience higher rates of relational bullying more than other types of traditional bullying (Adair et al., 2000; Crick & Nelson, 2002; Nansel et al., 2001; Olweus, 1993). For example, Adair and colleagues (2000) found that girls were more likely than males to fall victim to relational bullying behaviours, including spreading of rumours, social exclusion, in addition to gender-related verbal bullying (see also Nansel et al., 2001). Whether these gender differences with respect to types of victimization translate to cyberbullying is not yet known.

Studies have also sought to identify whether perpetration rates differ by gender, with results indicating that males tend to commit bullying acts more often than females (e.g., Adair et al., 2000; Nansel et al., 2001; Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003; Olweus, 1993; Solberg & Olweus, 2003). For example, in a study of 15,686 students in grades 6 through 10, Nansel, Overpeck, Haynie, Ruan, and Scheidt (2003) found that 23% of boys reported bullying other students with moderate to frequent occurrences, compared to 11% of girls that reported bullying others. A study by Solberg and Olweus (2003) found similar differences between the

genders, but with lower rates of male perpetration. In a sample of 5,171 Norwegian students in grades 5 through 9, 9.7% of all male students reported being perpetrators, compared to only 3.2% of female students (Solberg & Olweus, 2003).

In terms of gender differences relating to type of bullying methods used, male perpetrators tend to use more direct methods of bullying than females (Adair et al., 2000; Lagerspetz, Björkqvist, & Peltonen, 1988; Olweus, 1993). These include the use of physical bullying behaviours such as making threats of violence, shoving and pushing, and verbal bullying about sexual orientation (Adair et al., 2000). By contrast, females tend to use more indirect methods, such as rumour spreading and name calling (Lagerspetz et al., 1988; Olweus, 1993). Together, these findings highlight that in terms of traditional bullying, both perpetration and victimization are common among both males and females.

1.1.3 The Psychological Effects of Traditional Bullying

More critically, victims of bullying often experience adverse psychological effects. Some of these effects include increased reports of loneliness (Forero, McLellan, Rissel, & Bauman, 1999; Nansel et al., 2001), higher levels of anxiety (Craig, 1998), higher levels of stress (Coggan, Bennett, Hooper, & Dickinson, 2003), higher levels of hopelessness (Coggan et al., 2003), higher levels of depression (Coggan et al., 2003; Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999; Solberg & Olweus, 2003), increased thoughts of suicide (Kaltiala-Heino et al., 1999), lower levels of happiness (Rigby & Slee, 1993), and lower levels of self-esteem (Coggan et al., 2003; Olweus, 1995; Rigby & Slee, 1993; Solberg & Olweus, 2003). In addition, victims of bullying also have a tendency to report less enjoyment in school (Forero et al., 1999), a tendency to engage in tobacco use (Forero et al., 1999), and an increased likeliness to be absent

from school (Forero et al., 1999). In terms of long-term outcomes to traditional bullying victimization, a follow-up study by Olweus (1994) found that Swedish participants who were previously bullied in grades 6 through 9 were more likely to have increased levels of depression and lower levels of self-esteem at age 23 (p. 1197).

Research has also shown that perpetrators are subject to the psychological effects of bullying, with distinct short-term effects and long-term outcomes. For example, perpetrators of traditional bullying were more likely to engage in tobacco use (Forero et al., 1999; Nansel et al., 2001), more likely to engage in alcohol use (Nansel et al., 2001), report lower levels of happiness (Rigby & Slee, 1993), report lower levels of enjoyment in school (Forero et al., 1999; Rigby & Slee, 1993), and attain lower levels of academic achievement (Nansel et al., 2001). Of further concern, Olweus (1993) found that criminal behaviour was a long-term outcome in bullies, with approximately 60% of bullies having one criminal conviction by the age of 24.

Contrary to popular belief, those who bully do not always suffer from low self-esteem (Olweus, 1993, 1995; Rigby & Slee, 1993; Vaillancourt, Hymel, & McDougall, 2003). For example, in a study of 1,162 Australian students in Years 1 to 5, Rigby and Slee (1993) found that, while low self-esteem was common for students that had been victim to bullying, self-esteem ratings were marginally above average for bullying perpetrators. Vaillancourt, Hymel, and McDougall (2003) found similar results in their research on characteristics of bullying. In a sample of 555 Canadian students in grades 6 through 10, bullies reported positive self-perceptions and did not report levels of low self-esteem. While the effects of perpetration and victimization have been well-established with traditional bullying, some of the long-term effects on cyberbullying perpetrators and victims are not as well established. Consequently, in addition to traditional bullying, research has also aimed to describe the properties and psychological effects of cyberbullying.

1.2 Cyberbullying

In one of the earlier cases of publicized cyberbullying, 13-year-old Megan Meier committed suicide after being harassed on her MySpace page (Stelter, 2008). It came to light that a former friend's mother had created the fake profile that harassed her— forcing the public, researchers, and lawmakers to start considering the issue of cyberbullying and social networking.

Cyberbullying differs from traditional bullying in three key aspects. First, cyberbullying allows anyone to be the perpetrator, regardless of size, gender, or age due to the lack of face-to-face contact. Differences in physical strength and size are removed online, with cyberbullying offering perpetrators the protection of the Internet. Second, cyberbullying offers the benefit of anonymity to the perpetrator (Çetin, Yaman, & Peker, 2011; Patchin & Hinduja, 2006; Shariff, 2008) Many e-mail accounts, social networking websites, and chat rooms do not require identity verification. Anyone may create a virtual identity that need not match with their actual identity. This makes it difficult to trace who the perpetrator is and if a name is identified, whether it is a pseudonym. Third, cyberbullying allows the perpetrators 24-hour access to their victim, which means that harassment can occur at any time. While traditional bullying takes place at the schoolyard, allowing victims a refuge at home (Olweus, 1993; Patchin & Hinduja, 2006; Sullivan, 2000), for the online victim there is seemingly no escape. With technology being accessible through mobile phones and personal computers, users can stay connected to others at all hours. For example, a victim can receive harassing text messages at the dinner table without a parent ever knowing what is wrong. These deviations from traditional bullying require different approaches for researching and intervening in cyberbullying that incorporate the varying perpetrator characteristics and environments where cyberbullying takes place.

1.2.1 Methods of Cyberbullying

Just as there are different methods of traditional bullying, there are different methods of cyberbullying. Willard (2006) has identified seven methods by which cyberbullies can perpetrate their acts: *flaming*, *harassment*, *cyberstalking*, *denigration*, *masquerading*, *outing/trickery*, and *exclusion*. *Flaming* behaviour constitutes sending aggressive and offensive language via electronic communication to one or more people. An e-mail filled with profanity, overuse of capital letters, or overuse of exclamation points are specific examples of how flaming behaviour can manifest (Turnage, 2007). *Harassment* is repeated and intentionally harmful communication, portraying aggressive and offensive language. While one message may constitute a “flaming” behaviour, it is once this behaviour becomes consistent and repeated that these actions are classified as harassment. *Cyberstalking* involves sending threats or intimidating the victim. If the nature of the transgression contains serious threats of harm or injury, then the behaviour becomes criminal activity. *Denigration* is highly slanderous, involving the spreading of false rumours or gossip to hurt the victim’s image. Denigration may manifest in e-mails, video sharing sites, or even the exchange of altered images (Kowalski, Limber, & Agatston, 2012). There is a trend on the social networking website Facebook to create a group that encourages members to list girls considered to be “sluts” in their school and town. One such group listed over 100 teenage girls, giving first and last names of the victims (Madison, 2011). *Masquerading* invades the victim’s privacy by means of pretending to be the victim with the intention of portraying the victim negatively. Masquerading can, for example, involve sending e-mails on behalf of the victim or creating a Facebook profile under the victim’s name. *Outing/Trickery* entails sharing information, either personal or embarrassing, in order to reveal private facts about the victim. For

example, a girl may send a nude photo of herself to a boy she likes, who may in turn forward that photo on to his friends. Sending nude photos or text, known as sexting, is quite common among youth with access to mobile devices. Strassberg, McKinnon, Sustaíta, and Rullo (2013) reported that in a sample of 606 high school students, nearly 25% of males and females that received a sexting text from someone forwarded that text to others. Engaging in this behaviour can be especially harmful as the interactions have the power to be digitally stored for an indefinite amount of time. Finally, *exclusion* ostracizes the victim from online activity, such as Facebook groups or forums. For example, a Facebook user tells all of his friends to defriend⁵ someone he fought with at school. With the many different methods of cyberbullying others, research has also focused on the different cyberbullying personalities that use these methods to harm others.

1.2.2 Classification of Cyberbullies

Traditional bullying has relied on perpetrators being bigger and stronger than their victims. Anonymity online allows for more than just the stronger person to be the bully. Aftab (2008) has identified four different types of cyberbully personalities and their characteristics: the *Vengeful Angel*, the *Power-Hungry and Revenge of the Nerds*, the *Mean Girls*, and the *Inadvertent*. The *Vengeful Angel* uses the Internet to get back at those they feel have wronged others (including themselves), all the while seeing their own action as “Internet vigilantism” and not bullying. For example, a girl on Facebook might complain about her “stupid two-timing boyfriend” and post comments telling all of her friends how terrible of a person he is. To the girl, this is not seen as bullying, but telling the world the truth. Both the *Power-Hungry* and *Revenge of the Nerds*

⁵ Defriending is the act of deleting an existing Facebook friendship. Information (i.e. pictures, posts, and comments) that may have been viewable from that user is now private and can no longer be viewed.

cyberbully type use the Internet as a tool to exert power and harm to others. This type of bully can be the “small and weak kid” who would usually be a victim of traditional bullying, but can now act out since physical features are irrelevant online. Like the bully found in traditional bullying, this type of cyberbully likes to enforce control through fear with their victims. *Mean Girls* bully because they seek entertainment and want attention from others. However, they will stop if they get bored or do not receive required attention. More often than not, these tend to be females rather than males. Furthermore, these personalities tend to cyberbully other females more often than males. For example, this may be a group of girls having fun by creating a Facebook group to mock another student and spread rumours about her. If the needed attention does not come forth, then the group will be abandoned. The *Inadvertent* cyberbully type may unintentionally harm his victims and does not see his own actions as cyberbullying. This personality type may be someone who jokingly or out of anger uses an offensive term (e.g. calling someone “gay”) and not knowing the receiver takes offense to that particular word. There is an ignorance of how their actions affect others, whereas the Revenge of the Nerds personality has malicious intent. Different methods have to be used to intervene with these personalities, since motivations vary depending on the bully type. For example, educating individuals about other ways of expressing their feelings of injustice without injuring others in the process is an approach that would be useful for the Vengeful Angel type, but not for the Mean Girls. Given the number of cyberbullying personality types and the methods that perpetrators use to harass victims, internet users need to be informed on how to identify cyberbullies and the ways to intervene.

1.2.3 Prevalence and Gender Differences in Cyberbullying

Much of the research on prevalence of cyberbullying has centred on the adolescent population. Among those in grades 6 through 10, research using self-report methods have estimated perpetrator prevalence to be between 8.9% and 17% (Li, 2006; Wang, Iannotti, & Luk, 2012). While research on cyberbullying and adults is limited, one study has reported perpetration prevalence among university-aged students to be 22.5% (Dilmaç, 2009). With regards to victimization, research has found cyberbullying prevalence to be between 23% and 25% among the adolescent population (Li, 2006; TRU Research, 2012) and 55% among the adult population (Dilmaç, 2009). Few studies have listed specific online behaviours associated with cyberbullying. However, Hinduja and Patchin (2010) have identified common online behaviours by which adolescents have experienced cyberbullying. In a study of 1,963 students in grades 6 through 8, results indicated that the most common cyberbullying perpetration behaviour was “posting something online about another person to make others laugh,” with 23.1% of adolescents having identified as perpetrating this behaviour. The most private method, a personal e-mail, was the least common method of cyberbullying perpetration, with only 9.1% of adolescents having reported this behaviour. Though most adolescents reported perpetrating cyberbullying in public online environments, most victimization experiences occurred in more private settings. The most common method of online victimization occurred through receiving an upsetting e-mail, with 18.3% of adolescents identified as having been victim to this method. Receiving an instant message was also a common method, having been reported by 16% of adolescents. Further research on online cyberbullying environments is needed to confirm the prevalence of these behaviours.

In line with research findings relating to traditional bullying, gender differences in cyberbullying relating to perpetration and victimization have been reported. Studies investigating the prevalence of cyberbullying online among adolescents have shown that males are more likely than females to be perpetrators (Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Li, 2006; Wang et al., 2012; Wang, Iannotti, & Nansel, 2009). For example, a study investigating cyberbullying experiences among a sample of 264 students in grades 7 through 9 in Canada reported that males perpetrated cyberbullying at higher rates than females, with 22% of males identifying as having been a cyberbully, compared to only 12% of females. This seems to be a consistent finding.

However, the results of studies investigating gender differences in victimization are somewhat mixed. Some research indicates that there are no differences in victimization (Li, 2006; Molluzzo & Lawler, 2011). Li (2006) also analysed cyberbullying victimization prevalence in her study of Canadian adolescents. Out of the 264 students surveyed, 25% of male students and 25.6% of female students reported being cyberbullied at some point in their life. However, other research suggests that females are more likely to be victimized (Dilmaç, 2009; Schneider, O'Donnell, Stueve, & Coulter, 2012; Wang et al., 2009). In a sample of 20,406 students in grades 9 through 12, Schneider, O'Donnell, Stueve, and Coulter (2012) found that more females than males reported being cyberbullied, with 18.3% of females reporting victimization within the past 12 months, compared to only 13.2% of males. Dilmaç (2009) also found higher victimization rates for females than males in a study that examined cyberbullying victimization. In a Turkish study of 666 undergraduate students, 25.4% of females aged 18 to 22 reported having been victimized online, compared to 10.3% of males. One explanation for the gender difference discrepancy found in cyberbullying victimization may be that cyberbullying definitions and examples are not

clearly offered to participants. For example, a participant may assume that cyberbullying is an online computer behaviour, not knowing that receiving harassing text messages would constitute as cyberbullying. Unfortunately, research does not report the mediums through which cyberbullying takes place. So while statistics for victimization and perpetration are available, it is unclear where these online behaviours take place as there may be differences in the online medium used (e.g., social networking websites versus instant messaging).

Much of the research on cyberbullying experiences has been limited to self-report measures. Little, if any, research has examined rates of perpetration and victimization based on online content (i.e., live social networking webpages). The advantage of gathering live data is that conclusions can be drawn from cyberbullying situations in their full context. With self-report methods, there is often times the question as to whether participants are truthfully reporting. With regards to cyberbullying victimization and perpetration, participants may be shy or embarrassed of any role they have had in cyberbullying interactions. However, a content analysis of a live webpage would provide data of cyberbullying behaviours as they actually occur.

1.3 Social Networking

Social networking popularity is dependent on the use of the product. Users of social networking sites such as Facebook can create profiles, send private and public messages, send instant messages, and post photos and comments. Research on social networking has focused on MySpace, examining such factors as use and content sharing (Patchin & Hinduja, 2010; Thelwall, 2008). However, data based on MySpace has become less relevant today due to the increased popularity of Facebook and the decline of MySpace (Lipsman, 2011). In 2009, visitor trends from Facebook surpassed MySpace, and since then Facebook has exceeded MySpace in

popularity (Lipsman, 2011). Consequently, more researchers are using Facebook to investigate social networking behaviours relating to use (Christofides, Muise, & Desmarais, 2009; Joinson, 2008), privacy (Acquisti & Gross, 2006; Boyd, 2008), and self-esteem (Gonzales & Hancock, 2011; Kalpidou, Costin, & Morris, 2011). While these studies have been informative, less research has been dedicated to understanding cyberbullying on Facebook, particularly in relation to prevalence, gender, severity of content, and effects of exposure on uninvolved bystanders.

1.4 Forms of Electronic Bullying in New Zealand

While cyberbullying is not exclusive to the United States, the majority of research on the topic does tend to come out of the US. Forms of electronic bullying are noted in other countries, indicating that online bullying may be a problem worldwide (e.g., Barlińska, Szuster, & Winiewski, 2013; Calvete et al., 2010; Li, 2007; Raskauskas & Prochnow, 2007). For example, in 2006, New Zealander 12-year-old Alex Teka took her own life after falling victim to bullying from fellow schoolmates (O'Rourke, 2006). She had been relentlessly bullied with threats of violence and verbal harassment via e-mail and text messages. This reiterates the sometimes devastating psychological effects of cyberbullying.

Many cyberbullying studies from New Zealand have focused on text-bullying⁶, a specific type of cyberbullying medium. Research by Raskauskas (2009) explored the effects of depression as a result of victimization to traditional and text-bullying. Rates of depression was of particular interest given that research has shown associations between more traditional forms of bullying and increased risk of depression (Coggan et al., 2003; Forero et al., 1999; Kaltiala-Heino et al.,

⁶ Text-bullying is the act of cyberbullying others through the use of a mobile phone. Text-bully perpetrators might, for example, send nasty text messages to their victims.

1999; Olweus, 1993). In the study by Raskauskas (2009), out of 1,530 secondary students, 23% had experienced text-bullying on a frequent basis. Furthermore, over half of the students being text-bullied were also experiencing traditional bullying simultaneously. More critically, students who were victim to text-bullying reported higher depressive symptoms than those who had not experienced bullying of any kind (Raskauskas, 2009). Results from New Zealand text-bullying research are corroborated in US cyberbullying research (Hinduja & Patchin, 2010; Wang, Nansel, & Iannotti, 2011), indicating that not only are text-bullying victims affected similarly as traditional bullying victims, but also that New Zealand youth are at as much risk as youth within the US. In a US study by Wang, Nansel, and Iannotti (2011), 7,508 adolescents in grades 6 through 10 were surveyed on measures of traditional bullying and cyberbullying experiences, as well as measures of depressive symptoms. Adolescents who were victims of cyberbullying not only reported higher depressive symptoms than participants identified as perpetrators, but also higher depressive symptoms than those with no cyberbullying experiences. Although research on text-bullying in New Zealand is important and relevant to the youth of today, text-bullying is not the only type of electronic bullying used to harm others.

1.4.1 Internet Use and Social Networking within New Zealand

There is a high prevalence of Internet use in New Zealand. In a 2011 survey of 1255 New Zealand residents, 86% of New Zealanders reported being Internet users and 64% of that number belong to a social networking site— 96% belonging to Facebook (Smith, Gibson, Crothers, Billot, & Bell, 2011). When sorted by age, it was found that 98% of 12 - 29 year-olds use the Internet, and 87% of that age group use social networking sites such as Facebook (Smith et al., 2011). This indicates that high numbers of New Zealand youth are putting themselves and their

social lives on the Internet. As highlighted by the example cases of cyberbullying, social networking is not without risk. Identifying the prevalence and severity of cyberbullying on social networking sites such as Facebook would seem an important first step in determining the extent to which youth take part in and are exposed to this type of online activity. Though little New Zealand research exists on cyberbullying involving social networking sites, research from the US has found that teens belonging to social networking websites are more likely to be cyberbullied than teens that do not (Lenhart, 2007). In a study of 886 teenagers aged between 12 and 17, those using social networking sites were more likely to have been cyberbullied than those not using such sites (Lenhart, 2007). Bullying experiences included having rumours spread about them, receiving threatening or aggressive messages from others, and having others post embarrassing photos of them. It is apparent that some areas of the Internet pose greater threats to teens than others, particularly social sites where users create, share, and upload personal content.

Instances of cyberbullying have been documented in New Zealand. In a health and well-being study of New Zealand secondary school students, it was found that one in five students reported being cyberbullied via mobile phone text messages and through the Internet (Adolescent Health Research Group, 2008). That means in a standard New Zealand classroom, approximately 6 out of 30 students will have fallen victim to cyberbullying. Given the prevalence of internet and social networking use, it is important to understand how exposure to cyberbullying might affect bystanders. Although bystander responses to cyberbullying is a relatively unexplored area of research, previous research on exposure and responses to violent media might provide comparable methodologies and frameworks applicable to cyberbullying research.

1.5 Aggression and Media Violence

The relation between violent media and aggression has been of particular interest to researchers due to much debate surrounding potential effects from exposure to violent media such as television, movies, and video games. In the early 1970's, research aimed to explore the negative effects that exposure to violent television may have on children, particularly after the U.S. Surgeon General reported that viewing violent television programs caused increased aggressive behaviour in some children (Huesmann & Malamuth, 1986; Josephson, 1987; Pearl, 1987; Surgeon General's Scientific Advisory Committee on Television and Social Behavior, 1972). Specifically, children were prone to imitating violence after immediate exposure, children tended to behave more aggressively when exposed to television violence, and children that were predisposed to behaving aggressively were the most likely of the participants to respond to the television violence with aggressive behaviour (Surgeon General's Scientific Advisory Committee on Television and Social Behavior, 1972).

As technology has advanced to include other mediums by which youth may be exposed to violence, such as video games and the Internet, researchers have sought to understand the effects of exposure to violence via these mediums on aggression. Bushman and Huesmann (2006) examined the short- and long-term effects in a meta-analysis of 431 studies that included both child and adult participants across a variety of mediums (e.g., television, comic books, music, computer games). Results indicated significant effect sizes with regard to the impact of exposure on aggressive behaviour, affect, and cognition. Specifically, effects relating to adults were more strongly correlated with short-term effects of aggression. Short-term effects of exposure to media violence include responses such as physiological effects or aggressive behaviour. Bushman and

Huesmann (2006) argue that these effects may be attributed to priming of pre-existing beliefs and scripts about violence and aggression, whereas children do not have as many sets of beliefs and scripts with violence. Therefore, over time new beliefs and scripts may be programmed to become more defined as children transition into adolescence and on to adulthood. While many types of violent mediums have been used to understand the effects of exposure, Facebook and other social networking websites have yet to be researched.

1.5.1 The General Aggression Model

As cyberbullying is a new area of research, research has yet to describe the processes that link exposure, effects, and responses to cyberbullying events. Therefore, to better understand the impact of exposure to cyberbullying on Facebook, the General Aggression Model was identified as a suitable framework for research given its previous applications to explain the effects of violent media. The General Aggression Model (GAM) is a framework developed by Anderson and Bushman (2002) designed to merge different existing theories of aggression, social-cognitive theories, and social learning theories into one cohesive model. The model is displayed below in Figure 1.

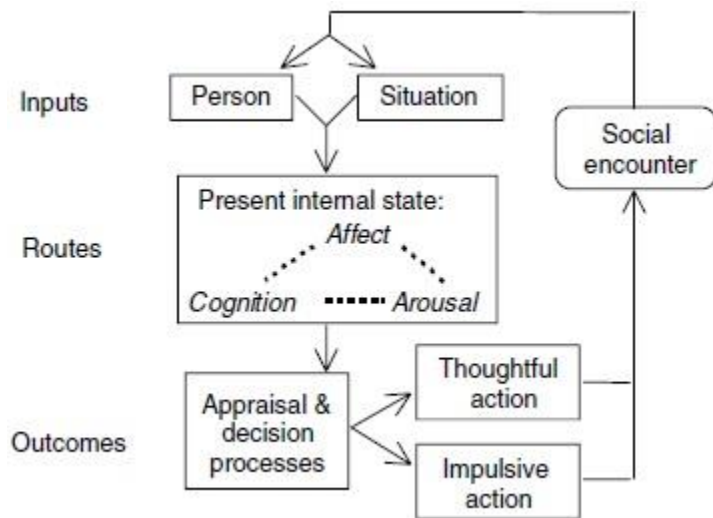


Figure 1. The General Aggression Model (GAM) episodic processes (Anderson & Bushman, 2002).

As seen in Figure 1, the GAM consists of inputs, routes, and outcomes. Anderson and Bushman (2002) have developed examples of the variables at each level of the GAM. Individual differences and situational variables are both inputs that affect routes. Individual differences include variables such as levels of trait hostility (i.e., the predisposition to be aggressive), gender, beliefs, attitudes, values, long-term goals, and scripts (e.g., behavioural expectations when presented with a situation). Situational factors include aggressive cues, provocation, frustration, pain and discomfort, drugs, and incentives. Within research, one or more of these input variables may be examined and manipulated to identify changes at the routes level, specially the ways in which one or more of the three internal states are affected. Internal states are identified as affect (e.g., hostile feelings, expressive motor responses), cognition (e.g., hostile thoughts, scripts), and arousal (e.g., heart rate, physiological responses). Finally, the effects of the internal states influence outcomes, which are identified as appraisals and decision processes. Depending on

how these internal states are affected, appraisals of the situation may induce a decision process resulting in aggressive behaviour.

Using the GAM as a foundation for studying aggression and violent media, Anderson (1997) has examined the priming effects of exposure to violent movie clips among undergraduate students. His approach incorporated trait hostility as an input variable to studying effects on hostile affect and hostile thoughts after exposure to viewing violent and less violent movie clips. Results indicated that viewing the violent movie clips increased hostile affect and hostile thoughts. Furthermore, participants that reported higher levels of trait hostility tended to report higher levels of hostile affect after viewing the violent movie clip than people who reported lower levels of trait hostility (Anderson, 1997). Within the context of this research, Facebook webpages will be used as a situational variable to identify whether exposure to cyberbullying content has potential effects on state hostility. In addition, controlling for levels of trait hostility will determine the extent to which any changes in state hostility could be attributed to having an aggressive personality.

Other studies have used violence portrayed on video games and film as a situational variable to examine effects on hostile affect (Anderson, Deuser, & DeNeve, 1995; Anderson & Dill, 2000; Anderson, 1997; Barlett, Harris, & Bruey, 2008), hostile thoughts (Anderson et al., 1995; Anderson & Dill, 2000; Anderson, 1997), and arousal (Anderson et al., 1995; Barlett et al., 2008; Carnagey, Anderson, & Bushman, 2007). These studies found that exposure to situational variables, such as violent images and aggressive video games, did produce changes to internal states. For example, Carnagey, Anderson, and Bushman (2007) examined the physiological and desensitization effects of exposure to violent video games. In their study, 257 undergraduate students were monitored for heart rate and galvanic skin responses while playing violent and

non-violent video games, followed by viewing video tapes portraying violence. The participants that played the violent video game exhibited responses indicative of desensitization while viewing the video tapes. Specifically, participants had lower heart rate and lower galvanic skin responses, compared to those who played the non-violent video game.

To date, content posted on social networking sites has not been used as a situational variable in the examination of hostile affect in relation to exposure to offensive content. More specifically, there have been no studies that have investigated the potential effects of exposure to cyberbullying content posted on social networking sites on levels of state hostility. Despite escalating rates of cyberbullying and the fact that content on many social networking sites can be freely accessed by the public, the potential impact of exposure to cyberbullying content on state hostility in bystanders has not yet been examined.

1.6 Research Questions

Accordingly, against this background, this thesis aims to first describe the composition of cyberbullying groups identified on the social networking site Facebook and the extent and type of cyberbullying content posted, while testing for gender differences in perpetration and victimization. A secondary aim was to assess the impact of exposure to cyberbullying content differing in severity on uninvolved bystanders. In 2006, Facebook implemented a News Feed feature that displays all content posted by friends of a member on the member's homepage (Sanghvi, 2006). The News Feed feature displays posted exchanges between two mutual friends, updates to relationship status, as well as any new profile information. Since the addition of the News Feed feature, Facebook members can view their friends' activities and posts and, by doing so, may involuntarily become bystanders to a cyberbullying act. Depending on privacy settings,

Facebook members can also freely view the pages and content posts of other members regardless of friendship status. This feature therefore makes Facebook an ideal medium for investigating the effects of inadvertent exposure on changes to internal states.

Methodological strengths of the current study include the use of content from authentic Facebook webpages rather than self-report measures to examine cyberbullying content type and gender differences in perpetration and victimization on Facebook, as well as the use of Facebook as a situational variable in the examination of potential effects of exposure to bullying content on individual differences in bystander state hostility while controlling for trait hostility. Specifically, this study aims are:

1. To identify and describe the extent to which cyberbullying exists on Facebook and the severity of the content.
2. To describe the associations between group composition and type of cyberbullying behaviour by examining composition variables such as membership numbers, gender, and member contributions in terms of the number and content of posts.
3. To determine the impact of exposure to offensive cyberbullying content on Facebook webpages on levels of bystander state hostility, while also examining gender differences and controlling for trait hostility.

1.7 Outline of the Chapters to Follow

This thesis is arranged into four chapters and presents findings from two experiments. Chapter 2 presents the methods, results and discussion of Experiment 1. The extent to which cyberbullying exists on Facebook by analysing content from groups identified as engaging in cyberbullying

behaviour is examined. The development of the rating scale and the coding of content are discussed in detail.

Chapter 3 reviews the findings of Anderson's (1997) study in further detail and incorporates the current research into the GAM framework. The development of the stimuli used in this research is described. The methods, results, and discussion of Experiment 2 are presented.

Chapter 4 provides a general discussion of the current research. This includes highlighting the key findings from Experiments 1 and 2, as well as outlining the overall strengths and limitations of this research. Implications for educating Facebook members about online behaviour, as well as raising awareness of adolescent online behaviour for parents are reviewed. Finally, suggestions for future cyberbullying research are discussed.

2.0 Experiment 1

Experiment 1 was designed to identify cyberbullying groups on Facebook in an attempt to examine the extent and nature of cyberbullying, group membership and composition, and gender differences in perpetration and victimization. Data was extracted from content posted by 200 open access groups⁷ on Facebook (national and international) identified as using this site to engage in cyberbullying. Specifically, this experiment aimed to examine the overall severity of cyberbullying content posted by these groups and to describe how this related to group composition, member gender, and participation.

The small amount of previous research relating to such issues has been limited to analysing common themes of female aggression and cyberbullying using a range of social networking websites. For example, Ponsford (2007) analysed the content posted within 25 public forums, such as groups and blog posts, across a variety of social networking websites, including Facebook, and identified five common themes of relational and verbal cyberbullying: gossip; attacks on people's personal appearance; attacks on sexual orientation; claims that the victim was not trustworthy; and threats of violence. However, the structure and degree of cyberbullying severity of such groups have yet to be studied in detail.

Limited research also exists on how social networking users respond negatively to cyberbullying groups and the percentages of users acting to condemn cyberbullying content. Research by Ponsford (2007) has identified one case of group members combatting cyberbullying with

⁷ An open group within Facebook means that any Facebook member can browse the content posted by the group, regardless of whether or not they belong to the group. A closed group does not allow the Facebook public to view the content of the group; instead, Facebook users can only see the group name and the members that belong to that particular group.

cyberbullying, drawing our attention to the fact that some members may object to cyberbullying behaviour under some circumstances and are willing to voice their objections. Other research, however, has found responses from bystanders ranging from ignoring the behaviour to intervention. A study of 799 adolescents aged 12 through 17 found that 95% of the adolescents were Internet users and 80% of those Internet users were social networking users (Lenhart, Madden, Smith, Purcell, & Zickuhr, 2011). 88% of social networking users reported having witnessed cyberbullying behaviour on those social networking websites, which included Facebook, MySpace, and Twitter. When confronted with cyberbullying on social networking websites, 90% of adolescents reported ignoring the behaviour, making this the most common response. Another common response involved more positive reactions, with 80% of adolescents defending the victim and 79% of adolescents telling the cyberbully to cease the behaviour. Only 21% of adolescents reported joining in on cyberbullying interactions. However, only Ponsford (2007) has analysed authentic webpages from social networking websites to analyse themes in cyberbullying. Accordingly, it is important for research into rates of cyberbullying on social network sites to distinguish within cyberbullying groups between those members that initiate cyberbullying against a designated victim and those that use cyberbullying as a mean to deter others from cyberbullying (i.e., retaliation).

Another theme concerning cyberbullying groups that has yet to be explored is the distinction between those members who actively contribute to cyberbullying content versus those who participate through more passive methods. For example, some members may actively contribute through contributing posts directly targeting a victim, while others in the group might indirectly participate by expressing laughter or other forms of confirmation. These two types of group

behaviours need to be considered when analysing group content because while they can both be classified as cyberbullying behaviour, they differ in method.

Therefore, the current research aimed identify and describe the extent to which cyberbullying exists on Facebook and the severity of the content to describe the associations between group composition and severity and type of cyberbullying behaviour on the social networking website Facebook by examining composition variables such as membership numbers and gender, in addition to other variables such as the number of posts and the types of posts in terms of their severity of impact and in terms of active posting (i.e., initiatory, retaliatory, positive, and neutral) and passive contributing.

The specific research aims of Experiment 1 were as follows: 1) to identify and describe the extent to which cyberbullying exists on Facebook and the severity of the content; and 2) to describe the associations between group composition and type of cyberbullying behaviour by examining composition variables such as membership numbers, gender, and member contributions in terms of the number and content of posts.

2.1 Method

Content created within open Facebook groups was chosen as the most appropriate medium for investigating instances and severity of cyberbullying content rather than other social networking mediums such as mobile phone texting or e-mail given the ready availability of the content to the public. In addition, Facebook groups typically provide information relating to number and gender of members. The content of Facebook pages created by closed groups was not studied due to privacy issues and because the study centred on the effects of exposure relating to public

accessibility. Furthermore, open Facebook groups display the personal and demographic information of group members to the public and allow access to member profile pages. Facebook pages such as interest pages belonging to companies or organizations were not studied due to the lack of appropriate content and legal/ethical issues. For example, Facebook interest pages are typically maintained by companies and organizations to promote their products and increase brand awareness. Facebook open groups, by contrast, relay personal content and are based on the personal comments and experiences of members. The following paragraph provides more specific details around the formation and construction of open Facebook groups.

Closed and open groups on Facebook are initially created by any Facebook member, who consequently becomes the group administrator⁸. This person has an on-going role in moderating the content posted by group members. Administrators within closed and open groups often play a role in managing group membership by deciding which other Facebook members can and cannot join the group. Group administrators can also evict any existing group members at any time and they have the freedom to maintain the secrecy of the group's cyberbullying acts, or to expand the group to include others as potential perpetrators. A more recent feature with these groups is that current group members can add any of their existing Facebook friends to their group without the consent of the friend. This means that some Facebook users may become unwilling members of cyberbullying groups. However, members can leave the group at their own discretion by selecting the "leave group" option on the group page.

⁸ Group administrators are Facebook users that have the power to edit the group, ban group members, delete content within the group, and elevate other group members to administrator status. By default, the group administrator is the Facebook member who created the group. However, there can be as many group administrators in the group as there are members.

2.1.1 Required Materials

For the purposes of this research, a Facebook profile was created by the researcher to access content posted by open Facebook groups. A screenshot of the Facebook profile used within this research is provided in Appendix A. A Facebook profile is required to navigate the website given that non-Facebook members are not allowed access to Facebook groups (open or closed), pages, or profiles. Anyone with an active e-mail account can register an account on Facebook.

2.2 Measures

Measures of cyberbullying behaviour included content posted by 200 open Facebook groups identified as engaging in cyberbullying. Experiment 1 consisted of three main assessment points— the identification of 200 open cyberbullying groups, the acquisition of Facebook group cyberbullying content, and the subsequent coding of the content posted within each group.

2.2.1 Facebook Group Search

To identify cyberbullying groups and to analyse cyberbullying content, a list of gendered and non-gendered pejorative words and hateful phrases were compiled and used as search terms to first identify 200 cyberbullying groups on Facebook by their name (see Appendix B for the lists of terms used). As limited research exists on cyberbullying and social networking, the search terms used in this research were adapted and expanded from the list used by Ponsford (2007) to include gendered and non-gendered pejoratives and hateful phrases. Using these search terms, 80 groups were found using female gendered terms (e.g., *slut* and *slag*), 80 groups were found using male gendered terms (e.g., *prick* and *tool*), and 60 groups were found using non-gendered terms

(e.g., *I hate* and *should die*) over a time period of three months. From the groups collected in the search, 116 groups targeted a male victim and 82 groups targeted a female victim. The gender of victims targeted by two groups could not be identified. The gendered search terms included both physical and personality traits (e.g., *has a small penis* and *is a bimbo*) as well as racial and religious traits (e.g., *I hate blacks* and *is a Jew*). Some of the gendered search items could be used to describe both males and females, but for categorization purposes it was decided to use the gender with which they were most strongly associated with. For example, *bitch* is a common pejorative linked with females; however, the term is also loosely associated with males. In this scenario, the term *bitch* was used in association with females. Omission of terms applicable to both genders would have excluded a significant amount of the available content on Facebook. The gender of the search term, the gender of the victim, and membership details (i.e., gender of group members) were also recorded and used for analysis⁹.

The use of pejoratives and hateful phrases was determined to be the most effective way to identify cyberbullying groups by name¹⁰. However, it is possible that cyberbullying behaviour exists within groups that use innocuous group names (e.g., *Jessica is nice*); but with over 600 million Facebook groups (O'Neill, 2010), it would have been impractical to search for that content within the time frame of this research. Search terms such as *I hate* resulted in thousands of groups that professed hatred for subjects other than people (e.g. *I hate math*). Therefore, only groups that contained negative terms in their group titles that related to people were collected for data. The names of all groups identified were recorded.

⁹ A variety of terms containing traits, sexual orientations, and religious affiliations were used in group searches to allow unbiased data collection. However, not all searches yielded group results that qualified for inclusion in this research (e.g., insufficient content, not enough members).

¹⁰ Facebook search results display groups that have the search term within their title. If a group contains the search term within the content (i.e. the description or the comments), but not the group name, then that group will not appear in the search results. Group descriptions are an optional feature that allows the group to provide information about their group to the general Facebook public.

The age and location of participants were not included in this research for two reasons. First, Facebook users can choose to make personal information private, such as their location and their age. Most of personal profiles identified within the cyberbullying groups did not have location and age visible to the Facebook public. Second, the location and age of Facebook users are not verified by Facebook, meaning that Facebook users can select any location and any age for their personal profile. Facebook requires members to be at least 13-years-old; therefore, some younger Facebook users may falsify their age in order to gain access to the website¹¹. Although age and location data were not collected in this research, efforts were made to include groups from different English-speaking countries with Facebook members of all ages.

2.2.2 Group Composition

To provide a measure of group composition, the following descriptive data was recorded: 1) the total number of members in the group; 2) numbers of male and female members; 3) numbers of unknown/hidden members in the group¹²; 4) the gender of the victim targeted by the group; 5) the total number of posts within the group at the time of data collection; and 6) the number of different members contributing to cyberbullying content within the group.

2.2.3 Severity of Cyberbullying through Content Analysis

Development of Negative Term Ratings as an Assessment of Cyberbullying

¹¹ A sample of 1,004 adolescents reported that 49% of the teenagers identified as using Facebook had admitted falsifying their age to access an online service (Lenhart et al., 2011).

¹² The number of unknown members refers to the number of members unaccounted for within the group. Facebook has discrepancies in the total number of members listed on the header and the number of members that can be accessed through the “Members” page. It is not clear why some groups display fewer members than the number of members listed in the description

To determine the severity of cyberbullying content posted within each group, negative content terms posted within each group were rated by four external observers for overall level of negativity. There were 5,544 posts recorded in total for the 200 groups. These 5,544 items were searched for content terms. Out of the 5,544 items, only 1,835 posts contained content terms related to cyberbullying. The remaining 3,709 posts contained content that did not include content terms (e.g., posts that were neutrally or positively themed). Three steps were involved in categorizing the content of the terms remaining. First, as an initial inspection of the level of *offensiveness* for each content term, a preliminary analysis of the content collected for each group was performed by the researcher. Second, a number of the content terms were combined to create more general inclusive classifications. For example, terms such as “has big ears,” “has a big nose,” and “has weird eyes” relating to one victim were combined and coded as “remarks about the victim’s personal appearance.” This left a total of 323 negative content terms. Third, these 323 content terms and classifications were organized to create a final list for all groups. Lists comprised of both words (e.g., *jerk*), phrases (e.g., *deserves a slow death*), and classifications (e.g., *remarks about the victim’s personal appearance*).

To determine level of offensiveness as a measure of negativity, the list of 323 content terms was then distributed to four laypersons recruited through convenience sampling strategies for rating (see Appendix C for an example page of the content terms presented to the raters). Two rating classifications were used to create the negativity measure. For the first classification, each content term was rated for the level of offensiveness relating to gender differences in perpetrator and victim. This was done using four different gender scenarios: 1) the offensiveness of the term when presented by a male to a female, 2) the offensiveness of the term when presented by a female to another female, 3) the offensiveness of the term when presented by a male to another

male, and 4) the offensiveness of the term when presented by a female to a male. This was completed using a 5-point Likert scale (i.e., 1 = not at all offensive, 2 = somewhat offensive, 3 = offensive, 4 = very offensive, 5 = extremely offensive). For the second classification, raters assessed each negative content term for general offensiveness, without considering the gender of the perpetrator or the victim, using an identical rating scale. The scores from each rater were averaged to give each negative content term five associated ratings— four averaged ratings for each of the gender scenarios and one averaged general offensiveness rating¹³. To determine interrater reliability, a reliability analysis was performed for the four raters. The intraclass correlation coefficient for each of the five offensiveness ratings ranged from 0.67, (95% CI: 0.61 – 0.72) to 0.69, (95% CI: 0.63 – 0.74), indicating acceptable consistency between the raters.

Development of Group Summed Negativity Score

To determine the offensiveness of the group, every group was given a summed negativity score. The summed negativity was determined from assessing all negative initiatory and retaliatory posts within the groups (i.e., every post previously identified as containing at least one negative content term). These scores were created in a 4-step process.

- 1) Every post was marked with the gender of the perpetrator and the gender of the intended victim, thereby creating a gender scenario for every post identical to the gender scenarios used in the negative content term rating questionnaire. As previously mentioned, posts

¹³ It was deemed important to collect data for general offensiveness as well as offensiveness by gender in the event that a) the gender of the perpetrator or the victim was not available for a content term (i.e., it was not always possible to confirm the gender of an author with a fake name or a gender neutral name (e.g., Alex Nlastname), either because the profile no longer existed or gender was not visible to the Facebook public (i.e., listed as private information)), and b) because some terms were perceived to be more offensive depending on the gender of the author and the gender of the victim (e.g., for example, if a male and a female both used the term “creep” against a female victim, the term was rated as more offensive if the speaker was a male than a female).

that had unidentifiable or unverifiable victims and/or perpetrators were marked as “non-gendered.”

- 2) Each of the five averaged offensiveness scores, as explained in the above section, was used in the assessment of group content. Using the gender of the perpetrator and the gender of the victim, negative contents terms were rated based on one of the associated five averaged offensiveness scores. For example, when the negative content term “needs to be killed” was assessed within a post and both the perpetrator and the victim were female, this term was rated higher than if the post was authored by a male.
- 3) If the post contained more than one negative content term, then these terms were averaged to give each post one score.
- 4) The scores for all posts were summed to give each group one summed negativity score.

The total number of content terms for each group was recorded and presented as descriptive data.

To determine how negative group members were, the average offensiveness perpetrated by males and females, as well as the average offensiveness directed at males and females were recorded and used in analyses. To determine how active group members were and which gender is targeted more often, the average number of posts contributed by males and females, as well as the average number of posts directed at males and females were recorded and used in analyses.

Development of Supplemental Coding to Assess Posts without Content Terms

Because not the entire sample of 5,544 posts posted within the selected Facebook groups contained cyberbullying terms, an additional content analysis was performed for non-bullying posts to determine percentages of retaliatory, neutral, passive contributory, and positive content.

This was done to further assess the nature of the content posted by cyberbullying groups and the extent to which these groups contained content that was not considered as initiating cyberbullying material. For example, from an initial visual inspection it was apparent that not all group members of the selected cyberbullying groups were engaging in cyberbullying. In some instances, members came to the defence of the victim by adding content such as “Actually she’s really nice...,” in contrast to the other members who would support initiatory posts through expressing laughter or agreement. Therefore, a further coding system was created to determine the nature of other types of posts posted within the groups. In addition to coding for negative initiatory posts outlined above, the following four post criteria were created so that the selected groups could also be classified by the overall tone of their posts:

- 1) Positive. Posts that were coded as *positive* were those that contained content that was in support of the victim and/or contributed content that took an anti-bullying stance that discouraged group members to be involved in cyberbullying behaviour (e.g., *I don’t like this group, I am leaving.*).
- 2) Neutral. Posts that were coded as *neutral* were those that contained neither pro-cyberbullying nor anti-cyberbullying terms (e.g., “*What are you doing this weekend?*”).
- 3) Passive Contributing. Posts that were coded as *passive contributing* were those that did not directly contain any cyberbullying terms, but posts that maintained a supportive tone through agreement or laughter (e.g., *haha I love this group!*).
- 4) Retaliatory. Posts that were coded as *retaliatory* were those that targeted persons other than the intended victim of the group. For example, some group members wrote negative posts directed towards the group administrators in defence of the victim.

While some of these posts conveyed some anti-bullying messages, the use of name calling and offensive language perpetuates cyberbullying behaviour. (e.g., *I can't believe you would say that about her! You should die a slow death*).

Unlike the coding for the negative content terms, the non-initiatory items were coded solely by the researcher. All posts were classified as either negative initiatory, positive, neutral, passive contributing, or retaliatory. To determine the extent to which each group contained content other than negative initiatory posts, each of the non-initiatory items were summed for each group. Descriptive data for each group was gathered to determine the total number of positive, neutral, passive contributing, and retaliatory posts.

Severity Index of Cyberbullying Groups

To create an index of group cyberbullying severity, the summed negativity scores were used by dividing each group into three severity categories based on percentile rankings. The first severity index (low severity) included those groups whose summed group negativity score fell below the 50th percentile ($n = 101$). The second severity index (moderate severity) included those groups whose summed group negativity score was between the 50th-75th percentiles ($n = 49$) and the third severity index (high severity) included those groups whose score fell above the 75th percentile ($n = 50$). The low, moderate, and high severity indices were also used in further analyses to determine gender and victim-perpetrator differences in relation to group cyberbullying severity. Specifically, analyses concerning *negativity* were performed to identify the amount of negativity and the number of posts sent by perpetrators and received as victims.

2.3 Procedure

A total of 200 open Facebook groups were accessed by searching for cyberbullying terms on the Facebook search bar, found at the header of every Facebook webpage. The search results were filtered to include only content relating to Facebook groups (i.e., to exclude content relating to profile pages and interest pages, which was not of interest or relevance). The Facebook results page¹⁴ displayed all groups that contained a cyberbullying search term within the group name, the number of group members in each group, and an icon that indicated whether the group was open or closed. As outlined earlier, only open group content was included for analysis. If a group on Facebook was indicated as being open, the following criteria were applied to determine the suitability of the group for inclusion in the study: 1) the group had to have more than one member; 2) the group had to have two or more items posted by members of the group (these could be the group description, posts, photos, and captions); 3) the group could not be about products, companies, places, or celebrities; 4) the group had to target at least one individual (e.g., *Amanda is a whore*) or an entire group of people (e.g., *kill people burn shit fuck school*); 5) the group could not be a parody group (i.e., groups joking and engaging in “false” cyberbullying¹⁵). Parody group content was also searched to identify whether the target victim was a member of the group. If the intended victim was a member of the group, the group was not eligible for inclusion in the research¹⁶.

¹⁴ The Facebook results page operates in a similar way to an Internet search engine. Pages that fit the search are aggregated and displayed to Facebook users. Facebook groups are displayed that contain the search term within the group name, but not the content of the group.

¹⁵ Many groups exist among friends under the façade of cyberbullying where members engage in friendly forms of teasing, including both the “victim” and the perpetrators. Groups were categorized as parody groups if the intended victim engaged in the interactions, accompanied with components such as laughter (e.g., “lol”) or indications that the group was a joke (e.g., “jk I love you!”).

¹⁶ Subsequently, one friendly banter parody group was included because the intended victim of the group changed after a new Facebook user unknown to the group joined. The new Facebook group member began soliciting the

The above criteria around group quality were established given that many groups on Facebook exist with less than two members and without any posted content, and to ensure that the content gathered had ecological validity (i.e., content targeting real people rather than celebrities meant there was a greater chance that the victim and perpetrator would know each other outside the context of Facebook).

All groups were saved as an HTML source page. This was to maintain the integrity of the research and preserve record of material being analysed. During data collection it was found that cyberbullying groups tend to be quickly removed. For example, if a page is reported to the Facebook website by any member of the Facebook community, a group administrator may delete the group to avoid any repercussions. Therefore, it was important to not rely on the online group website for documentation.

2.4 Ethics

Ethics approval for this research was obtained from the Human Ethics Committee at the University of Canterbury (reference: HEC 2012/53) (see Appendix D). Although the aim of this study was to examine content posted by real Facebook groups maintained by genuine Facebook users, a condition of ethics approval was that no identifying user information (i.e., names) of real members was to be referenced in any resulting publications. This was to protect group member privacy.

group and made comments that resulted in the group retaliating against her, making her the new target of cyberbullying comments.

2.5 Results

2.5.1 Group Composition

Group member composition was determined through both the percentages and average number of male and female group members, as well as the percentages and average number of male and female content contributors. These two factors revealed not only the gender makeup of the cyberbullying groups, but also which gender was actively contributing to all content (i.e., posting both negative and non-negative posts). Mean numbers and percentages of male and female group members and contributors, are displayed in Table 1.

Table 1

Mean Number of Group Members and Group Contributors within the Selected 200 Cyberbullying Groups

Group Composition	%	Mean	SD	SE
<i>Total Members¹</i>	-	28.77	28.49	2.01
Male	51	14.63	15.2	1.08
Female	42	12.15	13.6	.96
<i>Individual Contributors</i>	-	7.77	7.95	.56
Male	54	3.64	3.5	.25
Female	44	3.38	4.62	.33

¹Not listed is the number or gender of unknown members and individual contributors that could not be accounted for, either because they had a profile that no longer existed, they did not publicly list their gender, or they could not be found due to the previously mentioned listed member discrepancy in Facebook groups.

Paired T-tests performed on the data in Table 1 revealed that the cyberbullying groups were composed of significantly more male than female members ($M = 14.63$, $SD = 15.2$ vs. $M = 12.15$, $SD = 13.6$); $t(199) = 2.88$, $p = .004$. Furthermore, males also tended to contribute slightly more than females ($M = 3.64$, $SD = 3.5$ vs. $M = 3.38$, $SD = 4.62$), though this finding was not significant, $p > .43$. When comparing the member count against the individual contributors

count, however, it is clear that some group members never submitted any posts or content as contributions to the group.

2.5.2 Group Content

For each group, the overall number of Negative Initiatory, Positive, Neutral, Passive Contributing, and Retaliatory posts were recorded and compared to determine the extent to which negative posts appeared in relation to other types of posts and to assess which types of posts, in terms of tone, appeared most frequently within groups. The number of posts (M and SD) and percentages for each post tone type are shown in Table 2.

Table 2

Mean Number and Percentage of Negative Initiatory, Positive, Neutral, Passive Contributing, and Retaliatory Posts

Group Content Tone	%	Mean	Std Dev.	Std Error
<i>Negative Initiatory</i>	27	7.43	12.54	.89
<i>Positive</i>	5	1.27	4.69	.33
<i>Neutral</i>	41	11.37	21.37	1.51
<i>Passive Contributing</i>	21	5.90	9.47	.67
<i>Retaliatory</i>	6	1.76	7.56	.53

A visual inspection of the means indicates that cyberbullying groups post mostly neutral content (41%). However, when considering the percentages of negative posts, passive contributing posts, and retaliatory posts together, it becomes clear that posts that encourage cyberbullying are the predominant characteristic of the groups, making up 54% of posts. Positive posts made up only 5% of posted posts. Within each group there were, on average, 16.08 negative content terms (SD = 28.89). Given that each group contained, on average, 9.19 negative posts (the total of negative initiatory and retaliatory posts), these results indicate that negative posts often contained more

than one negative content term (e.g., one post within a group containing both the negative content terms *ugly* and *stupid*).

2.5.3 Severity of Negative Content in Relation to Gender and Victim-Perpetrator Roles

To determine the overall severity of impact of cyberbullying groups using only the content making up the summed negativity score and to describe this in relation to member numbers, gender, and victim-perpetrator relations, the severity index was created using the percentile cut off points described in the methods section. Based on the group severity ratings, groups were labelled as low, moderate, and high. The average number and range of negative terms, as well as the percentages of males and females that were being targeted within each of these severity groups and the number of groups are displayed in Table 3.

Table 3

The Number of Terms, the Number of Groups, and the Percentages of Groups that Targeted Males and Females for Each Level of Severity

Severity Levels	<u>Range of Summed Negative Scores</u>		No. of Groups	No. of Groups that Target Males (%)	No. of Groups that Target Females (%)
	M	SD			
Low	0-19.50	6.12	101	62	38
Moderate	19.51-46.60	8.29	49	41	55
High	46.61-589	126.68	50	66	34

Gender differences in terms of negative posts aimed against the victim and negative posts contributed by the perpetrator were also then examined. Means for the negativity directed at victims and negativity posted by perpetrators are shown below in Table 4.

Table 4

Average Summed Negativity Scores for Males and Females by Group Severity Index, Based on Role of Victim or Contributor in Group

Summed Negativity Within Groups		Male			Female		
		Mean	SD	SE	Mean	SD	SE
Summed Negativity Across All Groups							
	Victim	15.2	43.36	2.17	7.74	23.3	1.17
	Perpetrator	11.5	29.91	1.5	11.44	39.45	1.97
Summed Negativity within Each Level of Severity							
<i>Low</i>							
	Victim	3.04	5.19	.37	1.24	3.18	.22
	Perpetrator	2.57	4.83	.34	1.71	3.87	.27
<i>Moderate</i>							
	Victim	6.34	11.53	1.16	8.67	12.02	1.21
	Perpetrator	7.99	12.29	1.24	7.02	11.33	1.14
<i>High</i>							
	Victim	48.45	76.79	7.68	19.96	42.29	4.23
	Perpetrator	32.96	52.63	5.26	35.46	72.95	7.29

Paired T-tests performed on the data shown in Table 4 revealed two important findings relating to the summed negativity score. First, when analysing the summed negativity scores of all groups across all severity levels, posts directed at male victims ($M = 15.2$, $SD = 43.36$) were overall more severe than posts directed at females ($M = 7.74$, $SD = 23.3$); $t(399) = 3$, $p = .003$. Further paired t-tests were used to examine each severity group individually. Results indicated that males were subject to more severe negative content than females in the low ($M = 3.04$, $SD = 5.19$ vs. $M = 1.24$, $SD = 3.18$) and high groups ($M = 48.45$, $SD = 76.79$ vs. $M = 19.96$, $SD = 42.29$); $t_{low}(201) = 3.86$, $p = .000$, $t_{high}(99) = 3.07$, $p = .003$. However, in the moderate severity groups, there were no differences in the summed negativity scores for male and female victims ($M = 6.34$, $SD = 11.53$ vs. $M = 8.67$, $SD = 12.02$). Figure 2 below displays the gender differences by

summed negativity scores for male and female victims, both across all groups and by severity index.

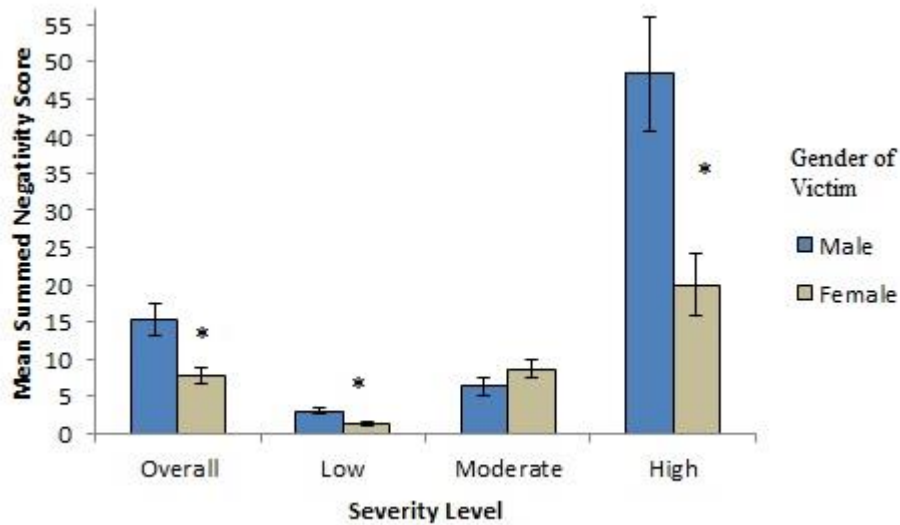


Figure 2. Victim gender differences by summed negativity scores by severity index. All significant differences at the .05 level are marked with an asterisk.

Second, female and male perpetrators tended to post content that contained similar levels of negativity regardless of group severity. Specifically, no gender differences were apparent for the high severity groups ($M = 35.46$, $SD = 72.95$ vs. $M = 32.96$, $SD = 52.63$), the moderate groups ($M = 7.02$, $SD = 11.33$ vs. $M = 7.99$, $SD = 12.29$), or the low severity groups ($M = 1.71$, $SD = 3.87$ vs. $M = 2.57$, $SD = 4.83$). Figure 3 below displays the gender differences by summed negativity scores for male and female perpetrators, both across all groups and by severity index.

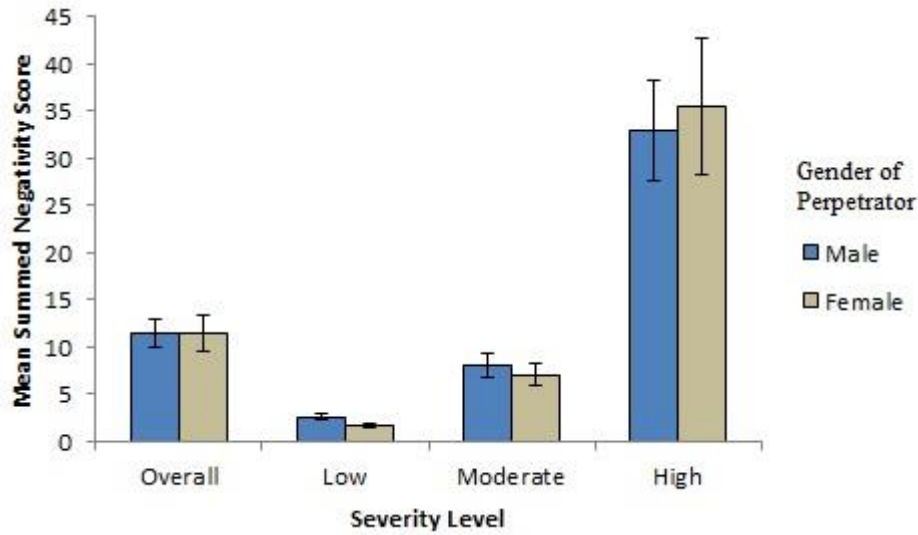


Figure 3. Perpetrator gender differences by summed negativity scores by severity index. All significant differences at the .05 level are marked with an asterisk.

2.5.4 Average Number of Negative Posts

In addition to examining the summed negativity scores by group severity, this research also assessed whether gender differences were evident in the average number of negative posts made by each group that contained negative content terms. Means for the negative group posts directed at victims and negative posts submitted by perpetrators are shown below in Table 5.

Table 5

Average Number of Negative Posts for Males and Females by Group Severity Index, Based on Role of Victim or Contributor in Group

Posts Within Groups	Male			Female		
	Mean	SD	SE	Mean	SD	SE
Average Number of Negative Posts Across All Groups						
Victim	2.28	5.38	.27	2.22	7.82	.39
Perpetrator	3.02	8.57	.43	1.47	3.91	.20
Levels of Severity						
<i>Low</i>						
Victim	.68	1.25	.09	.41	.90	.06
Perpetrator	.77	1.28	.09	.33	.82	.06
<i>Moderate</i>						
Victim	1.72	2.81	.28	1.51	2.55	.26
Perpetrator	1.47	2.95	.30	1.77	2.38	.24
<i>High</i>						
Victim	6.03	9.26	.93	6.55	14.56	1.46
Perpetrator	9.10	15.30	1.53	3.48	6.92	.69

Paired T-tests performed on the data shown in Table 5 revealed two important findings relating to the quantity of negative posts contributed by Facebook group members. First, males tended to submit more negative posts overall than females ($M = 3.02$, $SD = 8.57$ vs. $M = 1.47$, $SD = 3.91$); $t(399) = 3.33$, $p = .001$. Further paired t-tests were used to examine each severity group individually. Males tended to contribute more negative posts than females in both the low groups ($M = .77$, $SD = 1.28$ vs. $M = .33$, $SD = .82$) and high severity groups ($M = 9.1$, $SD = 15.3$ vs. $M = 3.48$, $SD = 15.3$); $t_{low}(201) = 3.75$, $p = .000$; $t_{high}(99) = 3.22$, $p = .002$. However, in the moderate severity groups, there were no differences in the number of posts submitted by males and females ($M = 1.47$, $SD = 2.95$ vs. $M = 1.77$, $SD = 2.38$). Figure 4 below displays the gender differences by average number of posts contributed by male and female perpetrators, both across all groups and by severity index.

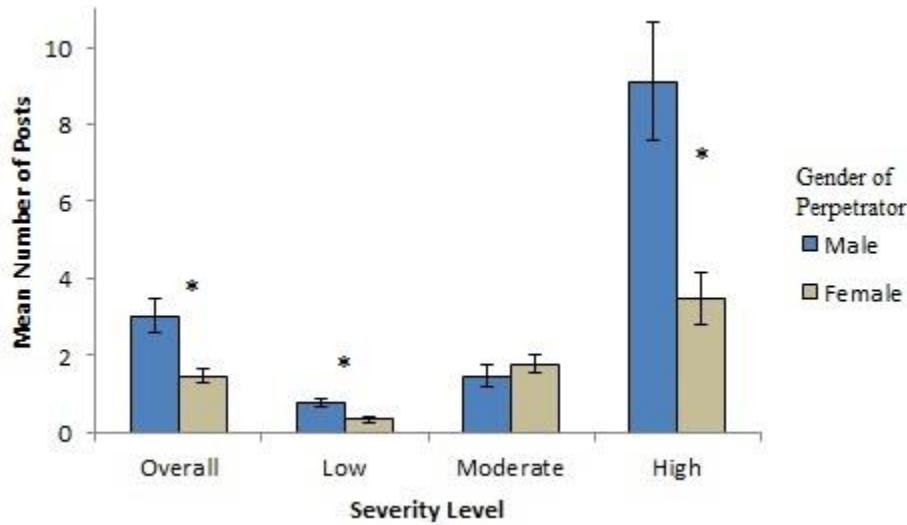


Figure 4. Perpetrator gender differences by average number of posts within groups by severity index. All significant differences at the .05 level are marked with an asterisk.

Second, results from paired t-tests indicated that, on average, a larger number of posts targeted male victims as opposed to female victims ($M = .68$, $SD = 1.25$ vs. $M = .41$, $SD = .90$) in the low severity group; $t(201) = 2.51$, $p = .013$. However, no gender differences were apparent for the moderate and high severity groups ($M = 1.72$, $SD = 2.81$ vs. $M = 1.51$, $SD = 2.55$) and high ($M = 6.03$, $SD = 9.26$ vs. $M = 6.55$, $SD = 14.56$). As groups became more severe, males and females were equally likely to be the target of a negative post. Figure 5 below displays the gender differences by average number of posts targeted at male and female victims, both across all groups and by severity index.

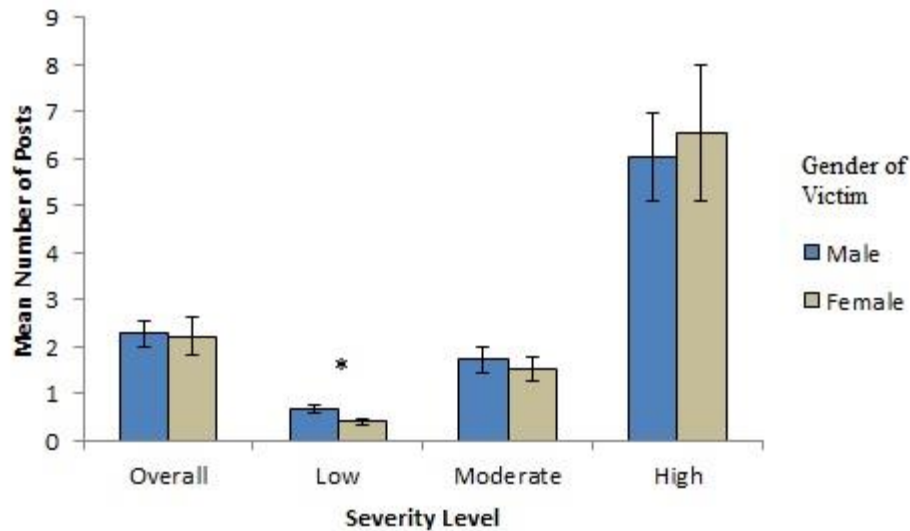


Figure 5. Victim gender differences by average number of posts within groups by severity index. All significant differences at the .05 level are marked with an asterisk.

2.6 Discussion

Experiment 1 aimed to identify the composition of Facebook groups identified as engaging in cyberbullying behaviour, as well as the extent to which negative content exists in those groups. Furthermore, Experiment 1 aimed to identify to what extent content exists in Facebook cyberbullying groups that is not directly negative, such as content that was identified as positive, neutral, and passive contributing. One of the major strengths of this study is that authentic live Facebook webpages were used in analysis, whereas previous research has relied on survey methods to research cyberbullying (e.g., Beran & Li, 2005; Dilmaç, 2009; Li, 2007; Wang et al., 2012). Second, this research provided an in-depth examination of a specific communication environment on Facebook, providing an analysis of group composition and content analysis. Four key findings emerged from this research. First, cyberbullying groups were found to be

composed of significantly more males than females, though males did not post significantly more often than females. Second, on average, cyberbullying groups were compromised of 54% posts classified as negative. Third, male victims were subjected to significantly more negative content than females; however, no gender differences emerged in the offensiveness of content submitted by males and females. Finally, males contributed more negative posts than females and in the low severity groups were targeted more often in posts than females. These results are reviewed in more detail below.

In regard to group composition, results revealed not only that significantly more males belonged to cyberbullying groups than females, but that males also contributed marginally more often than female group members. These results are novel in that no research has previously examined gender differences in live Facebook webpages. Previous research has identified female-only cyberbullying interactions across a variety of social networking mediums (Ponsford, 2007); however, there has not been data looking at male and female behaviour simultaneously. Results from the group content analysis revealed that negative, passive contributing, and retaliatory posts together made up 54% all of all posts within groups. Positive posts made up only 5% of groups and neutral posts made up 41% of all posts within groups. Together, these results indicate that Facebook cyberbullying groups were predominantly negative in nature and not many group members tried to deter others from cyberbullying.

When examining the summed negativity scores by gender of victim in relation to group severity indices, males were overall subjected to significantly more offensive content than females. These differences were especially highlighted within the low and high severity groups. Within the moderate severity groups, there were no significant gender differences in the offensiveness of content directed towards males and females. In addition, there were no gender differences in

terms of perpetrator contributions relating to the severity of negative content, indicating that both males and females were equally negative in their submission of posts within groups, regardless of the severity indices. This is the first study to show differences in offensiveness of content displayed in cyberbullying interactions. While Ponsford (2007) identified common themes of female cyberbullying, there has been no research to identify the offensiveness of the cyberbullying content. This is an important area of research as there may be differences in the way that males and females perpetrate and are victimized with cyberbullying. For example, threats against the victim were rated significantly higher than comments about physical appearance. These differences affected how groups were rated and, consequently, revealing differences in the severity of cyberbullying perpetration and victimization by gender.

Gender differences also emerged when analysing the number of negative posts by perpetrator and gender roles. In terms of perpetrating roles, males contributed more negative posts overall than females, particularly those within the low and high severity groups. This finding is comparable to previous research that has identified males as being cyberbullying perpetrators more often than females (e.g., Calvete et al., 2010; Li, 2006; Wang et al., 2009). Gender differences were also found in terms of posts by victim role, in that more negative posts in the low severity group were targeted at males than females. No gender differences were found in the moderate and high severity groups or when considering all groups collectively. Given that males and females were equally likely to be recipients of negative posts, these results would lend support to previous research that indicated no gender differences in cyberbullying victimization (e.g., Li, 2006; Molluzzo & Lawler, 2011). Though, it should be taken into consideration that this research only analysed the social networking website Facebook. Gender differences in

cyberbullying behaviours may exist on other social networking sites (e.g., Twitter or Tumblr) or other cyber mediums (e.g., text bullying or e-mail).

Taken together, the results from both the negativity ratings and the number of posts indicate that negativity was especially high when directed at males. However, the average amount of posts targeted against males and females were similar. Given that males and females were targeted in an equal numbers of posts, but that content directed at males contained higher negativity, then it can be concluded that the severity of the content within individual posts may have been higher when males were the victims (e.g., males may have been subject to more offensive content such as threats of physical violence, than other content such as attacks of physical appearance).

The results from Experiment 1 highlight both the prevalence and offensiveness of cyberbullying on Facebook. A 2013 study of 2,001 males and females aged 13 through 19 found that 85% of 19-year-old males reported being a victim to cyberbullying, making them the most targeted demographic (Knowthenet, 2013). Furthermore, of the respondents that reported being victimized online, 87% of participants indicated Facebook as the most common social networking website for cyberbullying to occur. While this research was not able to identify the age of the Facebook members, males were found to be more victimized than females. Other research has found comparable results. In a 2012 analysis of teenage online behaviour, 92.3% of the 1,004 teenagers surveyed reported witnessing cyberbullying interactions between others on Facebook (TRU Research, 2012). Therefore, not only is cyberbullying prevalent and offensive, but many members of the Facebook community are viewing these interactions.

When comparing the results from Experiment 1 to some of the behavioural responses reported in previous research (Lenhart et al., 2011), there is an inconsistency between the positive behaviours in the cyberbullying interactions. While Lenhart, Madden, Smith, Purcell, and

Zickuhr (2011) found high reported levels of positive responses, the current research found relatively low levels of positive responses to the cyberbullying groups. As discussed earlier in the chapter, group members can add any existing contact to a group without the contact's consent. Therefore, it might be expected that positive posts within groups be higher than just 5% of all posts within identified cyberbullying groups. The inconstancy may be attributed to participants in self-report surveys wanting to appear more helpful and not wanting to appear as aggressive. Alternatively, the groups sampled in Experiment 1 may have contained more group members that voluntarily joined the group than group members that were involuntarily added. Given the prevalence of offensive content, one of the victimization outcomes of cyberbullying must be discussed—the ideation and suicide attempts. And while the focus of Experiment 1 was not to categorize specific themes of cyberbullying content within Facebook groups, content did exist in groups that expressed desires for the intended victim to commit suicide. Previous research on bullying experiences and suicide has found that those who have been cyberbullied have also had higher levels of suicide ideation and high numbers of suicide attempts (Hinduja & Patchin, 2010; Schneider et al., 2012), compared to those have not been cyberbullied. More importantly, those who have been both cyberbullied and bullied in the traditional sense exhibited higher numbers of suicidal ideation and suicide attempts (Schneider et al., 2012).

The 200 cyberbullying groups studied in Experiment 1 were able to be accessed without any group affiliation and are therefore visible to every and any member of the Facebook community. The content within these groups contained negative terms ranging from low to high levels of negativity, with negative initiatory content making up 27% of all posts within a group, and passive contributing and retaliatory content making up 21% and 6% of all posts within a group, respectively. With such content readily available to the public it is important to identify the

psychological effects on Facebook users. Users may involuntarily become bystanders to cyberbullying behaviours, either through being unwillingly added to a cyberbullying group or just through browsing the Facebook News Feed. To address these concerns, the following experiment in this thesis (Experiment 2, Chapter 3) was designed to explore the potential emotional effects on bystanders.

3.0 Experiment 2

Experiment 1 has highlighted that, on average, 54% of the content posted by open cyberbullying groups on Facebook was rated as being offensive. Furthermore, only 5% of the content posted was aimed at combatting cyberbullying (e.g., through defending the victim or reprimanding the acts of cyberbullying). With such content readily viewable to all Facebook members, the aim of Experiment 2 was to identify to what extent exposure to negative cyberbullying content might have on the psychological well-being of bystanders. Accordingly, Experiment 2 was designed to analyse the effects of viewing cyberbullying content on mood. As outlined, exposure to violence on television has been well-documented to increase aggressive behaviours (e.g., Huesmann & Eron, 1984; Josephson, 1987; Manganello & Taylor, 2009; Pearl, 1987).

A secondary focus was to evaluate the influence of gender on any noted effects of exposure in light of discrepancies between the results of studies investigating the relationship between exposure to violence on television and aggressive behaviour relating to gender. For example, research using child participants aged 7 through 12 indicates that males are more likely than females to show increased levels of physical aggressiveness (Nathanson & Cantor, 2000) and increased risk for antisocial behaviour (Christakis & Zimmerman, 2007) after viewing violent television, while studies with adolescent and adult participants have shown similar aggressive behaviour effects between males and females (e.g., Huesmann, Moise-Titus, Podolski, & Eron, 2003; Paik & Comstock, 1994). In addition to age-related effects, another potential explanation behind the gender similarities reported in the research based on adolescent and adult samples, is that many of these studies have focused on the effects of exposure using measures of indirect aggression such as peer exclusion or rumour spreading, rather than measures of more direct

forms of aggression such as physical or face-to-face aggression (Huesmann et al., 2003).

Therefore, to further determine whether gender-related differences in internal states relating to more indirect forms of aggression (i.e., not face-to-face), as opposed to direct forms, are apparent post-exposure, gender was included as a variable in the current experiment. Specifically, the overall aim of Experiment 2 was to determine the impact of exposure to offensive cyberbullying content on Facebook on state hostility, while controlling for trait hostility and examining the extent to which gender differences may exist.

As outlined in Chapter 1, and proposed in the GAM (Anderson & Bushman, 2002), hostile affect is an internal state, with increases in this state argued to influence appraisals and decision processes that contribute to aggressive behaviour. For example, a student might harass and make verbal threats against another student. In response to this harassment, the student experiences increased levels of hostile affect and judges the instigating student to be an aggressive bully. As a result of the changes to internal state, the bullied student may decide to reply to the instigator with equally harassing comments and verbal threats. As discussed previously and presented in more detail below, the GAM holds that increases in hostile affect are a possible consequence of exposure to violent media (Anderson & Bushman, 2002; Anderson, 1997).

3.1 The General Aggression Model and State and Trait Hostility

Affect is an internal state, which, as outlined in Chapter 1, is one of the three internal states affected by situational variables and individual differences as proposed in the GAM (Anderson & Bushman, 2002). Accordingly, Experiment 2 aimed to investigate the emotional effects of exposure to cyberbullying content on Facebook in terms of change in state hostility, while taking into account gender and trait hostility. Trait hostility, previously identified as an example of

individual differences in Chapter 1, has been demonstrated to be related to increases in hostile affect and behaviour in research on children and adolescents after exposure to violent media, with those who have higher levels of trait hostility to be more affected by media violence than individuals with lower levels of trait hostility (e.g., Anderson, 1997; Bushman, 1995; Surgeon General's Scientific Advisory Committee on Television and Social Behavior, 1972).

Much of the method used in Experiment 2 follows that used in two studies by Anderson (1997), which, as outlined earlier in Chapter 1, examined the impact of trait hostility (Study 2) and viewing film violence on state hostility (Studies 1 and 2). In Anderson's Study 1, a sample of 53 undergraduate university students were asked, depending on a condition allocation, to view either a film clip containing a high degree of violent content or a clip containing less violence. Afterwards, participants completed a media viewing habits background questionnaire (the results from this questionnaire were not used in any data analyses), an assessment of state hostility, and a cognitive assessment consisting of a reading reaction time task. The reading reaction time required participants to read words aloud from a list comprising of aggressive and non-aggressive words. Results revealed that those who viewed the more violent movie clip reported a significantly higher change in state hostility than those who watched the less violent movie clip. However, there was no significant interaction between condition and gender. Results from the reading reaction time task showed no significant differences between condition and reading reaction times to aggressive words. Gender neared significance, in that male participants responded to aggressive words marginally faster than female participants. However, Anderson's Study 1 did not account for individual differences in trait hostility; therefore, his second study (Study 2) was conducted to replicate the effects in Study 1 and to determine the extent to which trait hostility may have influenced the changes in state hostility and cognition seen in Study 1

after exposure to violent media clips. In Study 2, which used a sample of 66 undergraduate university students, trait hostility was assessed prior to viewing the movie clip. Similar to Study 1, the background questionnaire, an assessment of state hostility and the cognitive reading task took place post-exposure. Results replicated the findings from Study 1, but also revealed that participants high in trait hostility reported significantly higher changes in state hostility than participants low in trait hostility. This suggests that existing differences in trait hostility should be controlled for in any investigation of changes in state hostility post-exposure to violent media content. The results from Anderson's studies also provide support for the GAM and indicate that exposure to violent film is a suitable situational variable medium for inducing change in internal states.

Given the results of Anderson's (1997) research and that other research has demonstrated that other media formats, such as video games, may be suitable situational variables (e.g., Ferguson & Rueda, 2010; Hansen & Hansen, 1990), the present research utilized Facebook cyberbullying content as a situational variable. This was done in an attempt to extend on Anderson's (1997) work and to determine if findings would translate to a new medium. Therefore, screenshots of cyberbullying content posted on Facebook were used in place of film clips as the situational variable.

Similar to the methods employed by Anderson (Study 2, 1997), self-reporting methods were used to measure participants' trait hostility pre-exposure to non-cyberbullying and cyberbullying content, and state hostility post-exposure. However, to extend on Anderson's work where state hostility was only measured post-exposure, state hostility in the current study was also measured pre-exposure. This was done to determine a baseline of emotional state for the participants so

that any change in state hostility post-exposure could not be attributed to pre-existing group differences in state hostility.

In the present experiment, bystanders were chosen as participants for two reasons. First, the effects of viewing acts of cyberbullying on social networking sites on uninvolved bystanders have not been examined. By default, any person viewing cyberbullying material becomes a bystander. Second, given that any member of Facebook may be unwillingly exposed to cyberbullying content as an uninvolved bystander, the inclusion of participants as bystanders lends ecological validity to the current study.

The specific research aim of Experiment 2 was to determine the impact of exposure to offensive cyberbullying content on Facebook webpages on levels of bystander state hostility, while also examining gender differences and controlling for trait hostility.

3.2 Methods

Participants

A total of 60 students (30 male and 31 female) from the University of Canterbury participated in this experiment. The mean age of participants was 20.9 years (range = 17 to 37). One female participant dropped out of the experiment during the testing process, finding the displayed content distressing. After receiving approval from the University of Canterbury Human Ethics Committee, participants were recruited via flyers posted around campus, the University of

Canterbury participant pool¹⁷, posts on Facebook, and e-mails sent to various departments on campus¹⁸. The inclusion criterion for the study was students that had completed their secondary education in New Zealand, as the main stimuli presented to the participants required reading interactions on Facebook in the English language. The exclusion criterion was current students in the STAR program¹⁹. There were a total of 31 participants who received course credit through participation in the University of Canterbury participant pool. The other 30 participants were entered into a draw to win one of two \$100 Westfield vouchers. Due to low recruitment rates, a further incentive of snack and drink was offered to every participant.

Design

A mixed design was used in this experiment. The between- subjects variables were gender (male versus female) and Facebook content exposure condition (neutral versus offensive). The within- subjects variable was emotional state (pre-exposure state hostility versus post-exposure state hostility). The covariate was trait hostility (very low versus low versus moderate versus high versus very high). Cut-off points for this were based on the trait hostility mean and standard deviation for the sample. Participants were randomly assigned to one of the two exposure conditions, with an equal number of male and female participants between the two conditions

¹⁷ The participant pool is a method of recruiting participants from introductory psychology classes. These students participate in experiments in order to receive course credit. Those that receive course credit do not receive further compensation (e.g., money).

¹⁸ An e-mail was sent to departments on campus (e.g. Sociology, Maths), requesting that information about the experiment be forwarded to all students in that department. This was done to increase awareness of the experiment to those who may not normally look at advertisement posters within the Psychology department and lecture auditoriums.

¹⁹ The STAR program at the University of Canterbury allows secondary school students to enroll in courses at the University. Due to the content nature, it was determined unsuitable to include students who had not previously finished secondary school.

(15 males and 15 females in the neutral condition and 15 males and 15 females in the offensive condition).

3.2.1 Measures

Facebook Content Type

In order to test the effects of offensive and neutral Facebook content, a compilation of 50 open Facebook webpages were acquired—25 of which contained content deemed to be of a neutral nature and 25 of which contained content deemed to be of an offensive nature according to pre-specified criteria defined below. Each of the 25 neutral and offensive screenshots was used in the corresponding exposure conditions. Both the neutral and offensive content included Facebook webpages posted by individuals from across a number of different English-speaking countries so to be as internationally representative and generalizable as possible.

To be fully representative of the different areas of Facebook, webpages that contain user-generated content, Facebook interest pages, group pages, profile pages, and photos screenshots were used as the stimuli. Offensive content was defined as screenshots of Facebook pages containing posts that communicated cyberbullying behaviour against one or more people. The neutral pages contained neither positive nor negative tones. Rather, the content consisted of everyday topics such as daily activities and food. The screenshots contained a combination of the following four types of Facebook pages:

- 1) Facebook groups. Facebook groups allow Facebook users to communicate over a specific topic (e.g., *I love NYC*), sending both text and photos to other members of the group.

Groups can be open or closed (as previously mentioned in Experiment 1). Six offensive group screenshots and six neutral group screenshots were used in Experiment 2.

- 2) Facebook interest pages. Facebook interest pages are frequently maintained by companies or organizations to promote their products and increase brand awareness. Facebook users can also create interest pages. However, all interest pages are open to the Facebook public, allowing any other Facebook member to contribute to and view its content. The interest pages used within the neutral condition were all maintained by companies and organizations (e.g., “Nintendo DS,” “This American Life”). However, the interest pages used within the offensive condition were all maintained by Facebook users (i.e., no companies or organizations were portrayed in the offensive condition). The difference between user-maintained Facebook interest pages and Facebook groups is that interest pages require no membership or approval from administrators. Any Facebook user can contribute and view the content. Six offensive interest page screenshots and six neutral interest page screenshots were used in Experiment 2.
- 3) Facebook personal profiles. Every Facebook member is required to maintain a personal profile. Profiles allow Facebook members to share any amount of information with their friends and/or the Facebook public (depending on the level of privacy selected by the Facebook user), such as thoughts, photos, and contact information. All interactions with Facebook friends and all content submitted by the Facebook user appear on what is referred to as their “wall.” Six offensive personal profile screenshots and six neutral personal profile screenshots were used in Experiment 2.
- 4) Facebook photos. Screenshots contained a photo of either offensive or neutral content with an additional 10 all-offensive or all-neutral comments pertaining to that photo.

Seven offensive photo screenshots and seven neutral photo screenshots were used in Experiment 2.

The Facebook screenshots used in this experiment were a collection of both authentic Facebook pages and mock Facebook pages. Authentic Facebook pages were defined as Facebook pages that are active and open webpages, maintained by real Facebook users. These pages were used in the experiment as often as possible to offer the most realistic material to participants. The mock Facebook screenshots were non-existent webpages that were created using blurred thumbnails in place of real photos, randomly generated names²⁰, and made-up content. Creating mock pages allowed for control over the content being displayed, specifically control over the level and type of offensive content participants were exposed to (e.g., offensive versus neutral material, attacks on sexuality or attacks on physical appearance). These mock Facebook pages were created by editing HTML on authentic Facebook pages using the Firebug²¹ add-on. Authentic Facebook pages were used as a template and edited to duplicate style, layout, and font; however, all text was modified to give the appearance of an entirely new Facebook webpage. The manipulated screenshots ensured that a Facebook user would recognize the design and layout of any type of Facebook page (i.e., photos, personal profiles, group pages, and interest pages). To further distinguish between authentic and mock pages, all mock pages were stamped with a yellow and purple star. Prior to the experiment, participants were informed that pages that contained both blurred thumbnail images and a yellow and purple star were mock pages that did not actually exist on the Facebook website. This information was released to participants post-exposure in

²⁰ Randomly generated names were used in place of real names so that no made-up content could be attributed to any present or past Facebook user. Names were created from online random name generators. Any similarities between the generated names and real Facebook users were coincidental.

²¹ Firebug is an add-on for the Firefox web browser. This add-on is a development tool that allows users to edit local copies of web pages. In this research Facebook pages were downloaded and Firebug was used to edit those local copies to create simulated Facebook pages.

accordance with ethical recommendations, so that they were aware that some of the content they had been exposed to was false and had not existed on Facebook.

Facebook Screenshot Content and Criteria for Inclusion

Neutral

The 25 neutral Facebook screenshots of interest pages, groups, profiles, and photos were found through a series of systematic searches on the Facebook website. For example, the interest pages and groups were found through random searches of commonplace items (e.g., *cars*). Each individual webpage was searched for comments that met the outlined criteria for inclusion in the research. Personal profiles were found through searching the profiles of group members that belonged to open groups. If a member of an open group had an open personal profile page, further steps were taken to identify the comments that could be used for research.

Seven mock photos were used in the neutral condition because it was not always possible to find neutral photos that each had 10 corresponding neutral comments. Therefore, neutral photos (e.g., a photo of grocery produce, an image of an informational sign in Egypt) were taken from the personal computer of the researcher and presented to participants in mock Facebook pages. An example of a mock photo screenshot used in the neutral Facebook content exposure condition is attached in Appendix E.

Offensive

The 25 offensive Facebook screenshots also comprising of interest pages, groups, profiles, and photos were found through a series of searches on the Facebook website using specific search

terms. For example, interest pages and groups were searched for content containing aggressive and cyberbullying terms and comments (e.g., *are sluts*). These searches were executed employing the same search terms used in Experiment 1. Content posted by six of the open cyberbullying groups used in Experiment 1 were selected for inclusion in Experiment 2 based on these search criteria. Profiles were found through searching the pages of group members that belonged to open groups. Group members that belonged to cyberbullying groups and had open profiles were generally found to have personal profiles that also contained aggressive and cyberbullying content. Facebook photos were found through searching cyberbullying interest pages, profiles, and groups for photos that included 10 corresponding cyberbullying comments. For example, one of the photos screenshots used displayed a morbidly obese woman with 10 comments attacking her physical appearance and weight.

The mock screenshots used in the offensive condition were created to present specific negative and aggressive themes common in media on cyberbullying, such as attacks on sexuality and homosexuality (e.g., Fenton, Calhoun, & Mangan, 2010; Madison, 2011). However, although attacks on sexuality were found frequently in comments within open Facebook groups; it was not possible to find any open Facebook personal profile pages containing such content. Therefore, a number of mock pages had to be created. The profile pages, interest pages, groups, and photos identified as suitable for inclusion in the offensive condition displayed content such attacking on race, sexuality, as well as body type that was targeted at victims of different religions, ethnicities, and sexual orientations. An example of an interest page and a personal profile used as screenshots in the offensive content exposure condition is attached in Appendix F.

Facebook Content Collection and Presentation

If a webpage on Facebook was indicated as being open, the following criteria were applied to determine the suitability of the group, profile, interest page, and photo for inclusion in the study:

- 1) Pages must be open and viewable to any Facebook member. Pages that were closed and not visible to the general Facebook public were not included in this research.
- 2) Pages must contain 10 comments in a sequential order that maintain either a neutral (for the neutral condition) or cyberbullying tone (for the offensive condition). This was done to keep the page in its most original form and to accurately display the flow of comments, given that Facebook pages typically display the most recent posts and comments at the top of the page, with older comments appearing in a chronological order below the most recent post.
- 3) Pages could not contain exploitive content (i.e., pages were excluded if they contained such content as child exploitation or overly graphic images of violence and/or sexuality).

Facebook updates the layout of its webpages with some frequency. The authentic pages were acquired between May and June of 2012, during which Facebook employed two different layout styles to display personal profiles— a single-column layout and a two-column layout (see Appendix G for examples)²². In the single-column layout the Facebook user can view all posts in a single column, requiring them to scroll down the page to view older posts. The two-column layout is more compact and Facebook users can view multiple posts on both sides of the screen.

A drawback of the single-column layout style is that personal pages and group pages were indistinguishable from each other if the header and sidebar of the individual page were not visible (i.e., the user had scrolled down the page). In the two-column layout, pages employ

²² After data was collected, all Facebook users were converted to a new timeline layout, making both the single-column and two-column layouts used in this research obsolete.

anchoring to allow users continued visibility of the page owner (i.e., name of personal profile or group) and page navigation options (e.g., navigating from wall posts to photos) regardless of how far they scroll down the screen. Both style types were presented with equal frequency in the experiment. To ensure that participants always knew what type of page they were viewing (i.e., personal profile versus group), the header and sidebar of the page were always displayed at the top of the screen. Authentic one-column pages in both conditions that had the header and sidebar pasted to the screenshot were identified with a red and green star. Participants were informed that these pages had been modified for this research.

Each neutral and offensive Facebook screenshot was cropped to include 10 sequential posts and comments. These comments could appear anywhere on the webpage as long as the comments appeared in a consecutive order. The Facebook screenshots were presented to participants using Microsoft PowerPoint, with 25 screenshots per condition (i.e., neutral versus offensive). The presentations were displayed on a ViewSonic 22" monitor in a private office within the Psychology building at the University of Canterbury.

3.2.2 Scales and Pre- and Post- Questionnaires

A total of two scales and two questionnaires were used in the experiment: the State Hostility Scale (Anderson et al., 1995), the Irritability Scale (Caprara, Cinanni, D'Imperio, Passerini, Renzi, & Travaglia, 1985), a Pre-Exposure Questionnaire, and a Post-Exposure Questionnaire.

State Hostility

The State Hostility Scale was used to provide a measure of state hostility (i.e. anger and hostility related moods) pre- and post- exposure to Facebook content. This scale has been previously used in studies examining changes in aggression as a response to viewing films containing violent content (Anderson, 1997), sports video games depicting violence (Anderson & Carnagey, 2009), as well as emotional responses to blood in violent video games (Ferguson & Rueda, 2010). The State Hostility Scale is a 35-item assessment that requires participants to rate their agreement to positive and negative mood statements. The scale contains 24 items that are related to negative states (e.g., *I feel irritated* and *I feel bitter*) and 11 items that relate to positive states that indicate a lack of hostility (e.g., *I feel polite* and *I feel cooperative*). Participants rate their agreement via a 5-point Likert scale (1= strongly disagree to 5= strongly agree). Three of the items (*wilful*, *tender*, and *vexed*) were left off the scale due to reports of poor item-total correlations (Anderson, 1997). A further item (*sympathetic*) was excluded due to testing error during the data collection process. Scores for each item were summed to give each participant a total State Hostility score. Higher scores reflected higher hostility and lower scores reflected a lack of hostility. The scale was administered twice (pre- and post- exposure), giving each participant two State Hostility scores. All positive mood statements were reverse scored. Scale reliability has previously been shown to be acceptable ($\alpha = .93-.96$) (Anderson et al., 1995; Anderson, 1997; Lindsay & Anderson, 2000). A copy of the State Hostility Scale is provided in Appendix H.

Trait Hostility Covariate

The Caprara Irritability Scale (CIS) was used to provide a measure of trait hostility to control for aggressive personalities. Past research has found that participants who had higher irritability were more likely to behave aggressively, indicating a relationship between the two constructs

(Caprara, Renzi, D'Augello, D'Imperio, Rielli, & Travaglia, 1986; Caprara, Renzi, Alcini, Imperio, & Travaglia, 1983). Consequently, this scale has also previously been used as a measure of irritability and aggression in studies examining changes in aggression as a response to viewing films containing violent content (Anderson, 1997), as well as the effect of aggressive personality on hostile perception and hostile expectations in social interactions (Dill, Anderson, Anderson, & Deuser, 1997). In this research, trait hostility was measured to determine the extent to which levels of trait hostility affected reports of state hostility. The CIS is a 30-item assessment with 10 items that are labelled as control items (e.g., *I do not like to make practical jokes*) that lack irritability (Anderson, 1997; Dill et al., 1997), and 20 items labelled as “irritability” (Caprara et al., 1985) items (e.g., *I often feel like a powder keg ready to explode*). Participants rate their level of agreement with statements via a 6-point Likert scale (1= strongly disagree to 6= strongly agree). The 10 control statements were reverse scored and responses were summed for each participant to create a trait hostility score. Similar to Anderson (1997), scores were converted to deviation scores from the mean. Higher scores reflected higher trait hostility and lower scores reflected a lack of trait hostility. Scale reliability has previously been shown to be acceptable ($\alpha = .80-.90$) and validity has been demonstrated in previous research (Caprara et al., 1985). A copy of the Caprara Irritability Scale is provided in Appendix I.

Additional Variables

Background Questionnaire

The pre-exposure questionnaire contained false variables designed to mislead participants about the true intentions of the experiment. The first five questions asked participants about internet use and the remainder of the questions inquired about sleeping habits. No data from this

questionnaire were used for analyses. Furthermore, there was no indication that participants thought these were false variables. A copy of the pre-exposure questionnaire is provided in Appendix J.

Social Networking, Facebook, and Cyberbullying Post-Exposure Questionnaire

This post-exposure questionnaire was designed to provide measures of participants' Facebook use, social networking habits, and cyberbullying history. These questions were included for two reasons. First, with limited New Zealand information available on cyberbullying experiences, it was decided that demographic data, such as gender and age, and information regarding cyberbullying and Facebook use would provide important descriptive information. Second, demographic, Facebook use, and cyberbullying data was included in a final regression analysis to determine the relative contribution of pre-exposure trait and state hostility, exposure condition, Facebook use, cyberbullying experiences, and gender, to post-exposure state hostility. A copy of the post-exposure questionnaire is provided in Appendix K.

The questionnaire contained a total of 13 questions: two questions asked participants for demographic information (i.e., gender and age), seven questions inquired about Facebook use, and five questions inquired about experiences with cyberbullying. Participants were asked if they had ever been a victim of cyberbullying, whether they had ever been a perpetrator of cyberbullying, and whether they had been a bystander to cyberbullying²³. If participants responded affirmatively to being a victim of cyberbullying, they were asked to provide details about how many instances of cyberbullying were experienced and through which medium.

²³ All participants were given definitions of each cyberbullying role so that no confusion would arise from terminology.

Participants were also asked whether they personally had a Facebook profile. If participants responded affirmatively, they were further asked about the quantity of time spent on Facebook, the number of friends they currently have on Facebook, and about what activities they engaged in most on Facebook. Data from the cyberbullying and Facebook use questions provided information about both the extent to which participants had personally experienced cyberbullying, as well as their Facebook habits.

Responses from the post-exposure questionnaire were used in a multiple regression, specifically examining how cyberbullying experiences (i.e., being a perpetrator, a bystander, or a victim) and Facebook use (i.e., having a Facebook account and the quantity of time spent on Facebook) predicts levels of state hostility during the post-exposure testing time. Eight predictor variables were used in the multiple regression: exposure condition, gender, pre-exposure trait hostility, pre-exposure state hostility, experiences as a cyberbullying perpetrator, experiences as a cyberbullying bystander, Facebook use, and experiences as a cyberbullying victim. Two of the predictor variables (exposure condition and gender) were treated as categorical variables. Gender was coded as 1 = female and 2 = male. Exposure condition was coded as 1 = offensive and 2 = neutral. Pre-exposure trait hostility scores, as previously discussed, were entered as deviations scores from the mean. Higher scores reflected higher trait hostility. Pre-exposure state hostility scores, as previously discussed, were entered as the summed responses to the State Hostility Scale. Higher scores reflected higher state hostility. Experiences as a cyberbullying perpetrator and experiences as a bystander were coded as: 0 = no experience and 1 = previous experience. Facebook use was a composite score composed of the summed responses to five of the Facebook use questions in the post-exposure questionnaire (see Appendix L for the Facebook questions and scoring). Higher scores reflected higher levels of Facebook use. A similar summed

composite score was created for the responses relating to the three cyberbullying victim questions (see Appendix M for the cyberbullying questions and scoring). Higher scores reflected higher frequencies of cyberbullying victimization.

3.2.3 Procedure

Participants were told the experiment aimed to examine gender differences and Facebook use. The true intentions of the experiment were kept from participants so that results on the questionnaire and measures of state and trait hostility would not be biased. Participants were tested individually with the researcher situated at a nearby desk to assist if the participant became distressed. The experiment consisted of three phases: the pre-exposure stage, the exposure phase, post-exposure stage.

Pre-Exposure Stage

After giving informed consent, participants were verbally informed that they would be completing questionnaires regarding stress, mood, sleeping habits, and internet use. Participants were presented with the three pre-exposure tasks— the State Hostility Scale, the Irritability Scale (i.e., trait hostility), and the pre-exposure questionnaire. Participants were provided with instructions on how to complete the electronic assessments. This stage took approximately 10 minutes to complete. Participants were randomly allocated into either the neutral or offensive content exposure conditions.

Exposure Stage

Depending on condition allocation, the exposure phase involved showing the participants one of two PowerPoint presentations (i.e., 25 screenshot displays containing either all offensive content or all neutral content). Participants were told to read the content and study any images. No further instruction was given regarding what parts of the page to focus attention. Each page was presented for 60 seconds, resulting in a total viewing time of 25 minutes. All pages transitioned automatically, requiring no interaction with the computer on the behalf of the participants.

Post-Exposure Stage

Upon completion of the exposure stage, participants were instructed to report their current mood on the State Hostility Scale— this scale was identical to the one presented pre-exposure.

Participants were also presented with and asked to complete the post-exposure questionnaire.

Information on how to fill out the questionnaire electronically was provided to the participants.

This stage took about 10 minutes to complete.

After the final questionnaire, participants were debriefed about the study. Participants were told this research examined the relationship between cyberbullying and aggression in association to emotional shifts. Participants were offered the opportunity to withdraw their data and were given counselling numbers and researcher contact information in the event they felt distressed.

3.2.4 Ethics

Ethics for this research was obtained from the Human Ethics Committee at the University of Canterbury (reference: HEC 2012/53) (see Appendix D). Strict guidelines were formed to protect both the privacy of the Facebook pages as well as not expose participants to unnecessarily

offensive material. While participants were not informed of the true intentions of the study, they were told that they would be shown offensive Facebook material that made attacks on religion, sexual orientation, body characteristics, etc. Furthermore, participants were allowed to leave the experiment at any time without penalty of either 1) not receiving course credit, or 2) not being eligible for the draw.

3.3 Results

To determine whether exposure to offensive Facebook content affected participants' current internal mood state, State Hostility Scale scores were generated before and after the exposure of the stimuli. The data for the pre- and post- State Hostility questionnaires were analysed using a mixed ANOVA. The between-subjects factors were stimulus condition (Neutral versus Offensive) and gender (Male versus Female). The within subjects variable was testing time (Pre-exposure versus Post-exposure). Finally, trait hostility was added as a covariate to identify how predisposed levels of trait hostility might influence state hostility. These results are reported on page 74.

First, to determine the level of trait hostility in participants, scores from the CIS were converted into deviation scores and labelled as very low (i.e., > 2 SD below the sample mean), low (i.e., > 1 SD below the sample mean), moderate (i.e., between 1 SD below the mean and 1 SD above the mean), high (i.e., > 1 SD above the sample mean), and very high (i.e., > 2 SD above the sample mean). The mean CIS score for participants was 91.82 (SD = 17.41). The range of CIS scores within each of the trait levels, as well as the corresponding number of participants within each condition, is displayed in Table 6.

Table 6

The range of summed state scores from the CIS and the number of participants within each condition for each level of trait hostility

Trait Levels	Range	Number of Participants		
		Total	Neutral Condition	Offensive Condition
Very Low	< 57	2	1	1
Low	57 - 74	7	3	4
Moderate	75 -109	43	22	21
High	110 - 126	6	4	2
Very High	> 126	2	0	2

The above table indicates that participants identified as having very low to very high trait hostility were similarly distributed between the two conditions (i.e., neutral and offensive). Table 7 below displays descriptive data from the pre- and post- state hostility scores by condition, gender, and trait hostility of the participants. In addition, the results from the mixed ANOVA for pre- and post- state hostility are displayed below.

Table 7

Pre- and Post- State Hostility Scores by Condition, Gender, and Trait Factors (unadjusted)

Factors	N	Pre-Exposure		Post-Exposure		Observed Power ¹	F Statistic	p
		Mean	SD	Mean	SD			
Condition (total)	60							
Neutral	30	53.3	12.13	58.97	14.58			
Offensive	30	55.63	16.75	80.33	22.53	1.00	30.99	<.001
Gender (total)	60							
Male	30	53.97	12.58	66.47	20.49			
Female	30	54.97	16.48	72.83	22.71	.21	1.37	.25
Trait (total)	60							
Very Low	2	51	7.07	41	8.49			
Low	7	45.71	8.1	58.86	11.01			
Moderate	43	53.53	13.28	67.4	19.13			
High	6	63.83	9.09	94	17.39			
Very High	2	80.5	41.72	111.5	17.68	.92	11.79	.001

¹Computed using alpha = .05

3.3.1 Condition Differences in Pre- and Post- State Hostility

A mixed ANOVA resulted in a main effect for the between-subjects factor of condition, in that participants were more likely to report higher state hostility post-exposure when placed in the offensive condition ($M_{\text{Time1}} = 55.63$, $SD_{\text{Time1}} = 16.75$; $M_{\text{Time2}} = 80.33$, $SD_{\text{Time2}} = 22.53$) than participants in the neutral condition ($M_{\text{Time1}} = 53.3$, $SD_{\text{Time1}} = 12.13$; $M_{\text{Time2}} = 58.97$, $SD_{\text{Time2}} = 14.58$); $F(1, 55) = 30.99$, $p < .0001$. The interaction between condition and gender was not significant, $p > .05$. In Figure 6 below, the differences between the two conditions are displayed at both the pre- and post- exposure testing times. During the pre-exposure testing time, independent t-tests indicated that participants in both groups reported similar levels of state hostility, $t(58) = .62$, $p = .54$; however during the post-exposure testing time participants who viewed the offensive Facebook pages reported higher state hostility, $t(49.65) = 4.36$, $p = .000$.

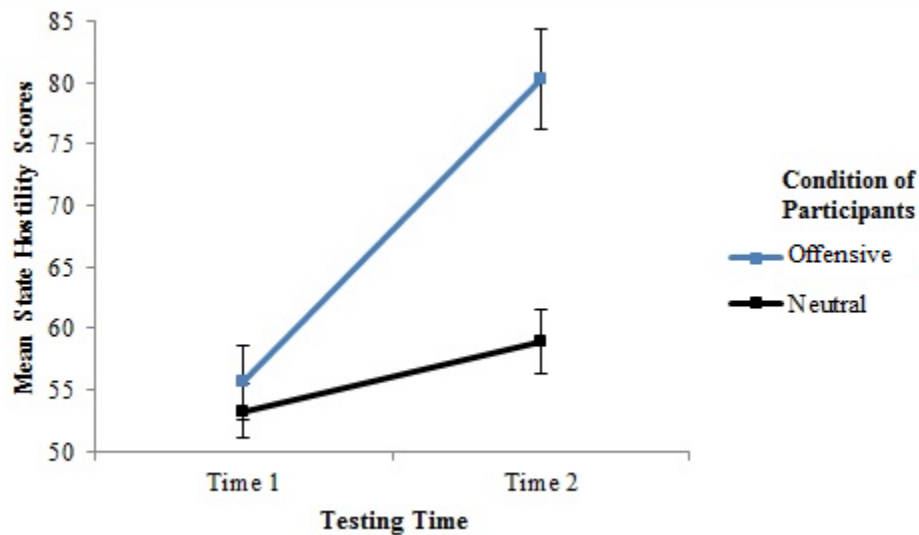


Figure 6. Differences of mean pre- and post- state hostility scores for offensive and neutral conditions.

3.3.2 Gender Differences in Pre- and Post- State Hostility

A visual inspection of Table 7 suggests that females were affected more by the offensive content ($M_{\text{Time1}} = 54.97$, $SD_{\text{Time1}} = 16.48$; $M_{\text{Time2}} = 72.83$, $SD_{\text{Time2}} = 22.71$), reporting higher state hostility post-exposure than males ($M_{\text{Time1}} = 53.97$, $SD_{\text{Time1}} = 12.58$; $M_{\text{Time2}} = 66.47$, $SD_{\text{Time2}} = 20.49$). However, this result did not achieve significance, $F(1, 55) = 1.37$, $p > .25$, indicating that both males and females respond to state hostility similarly after exposure to offensive and non-offensive Facebook material.

3.3.3 Covariate Measure: Trait Hostility during Pre- and Post- State Hostility

The covariate in the mixed ANOVA, trait hostility, was significantly related to reported levels of state hostility, $F(1, 55) = 11.79$, $p = .000$. Specifically, participants who had reported higher levels of trait hostility were more likely to report increased levels of state hostility (see Figure 7 below). Figure 7 displays the differences in the state hostility scores among the five trait hostility groups (very low, low, moderate, high, and very high) during the pre- and post- exposure testing times. An ANCOVA was conducted to determine whether condition affected post-exposure state hostility, while controlling for trait hostility. The effect of condition on levels of state hostility remained significant even after controlling for trait hostility, $F(1, 55) = 35.12$, $p = .000$.

Participants placed in the offensive condition were more likely to report higher state hostility post-exposure than participants in the neutral condition, regardless of their level of trait hostility.

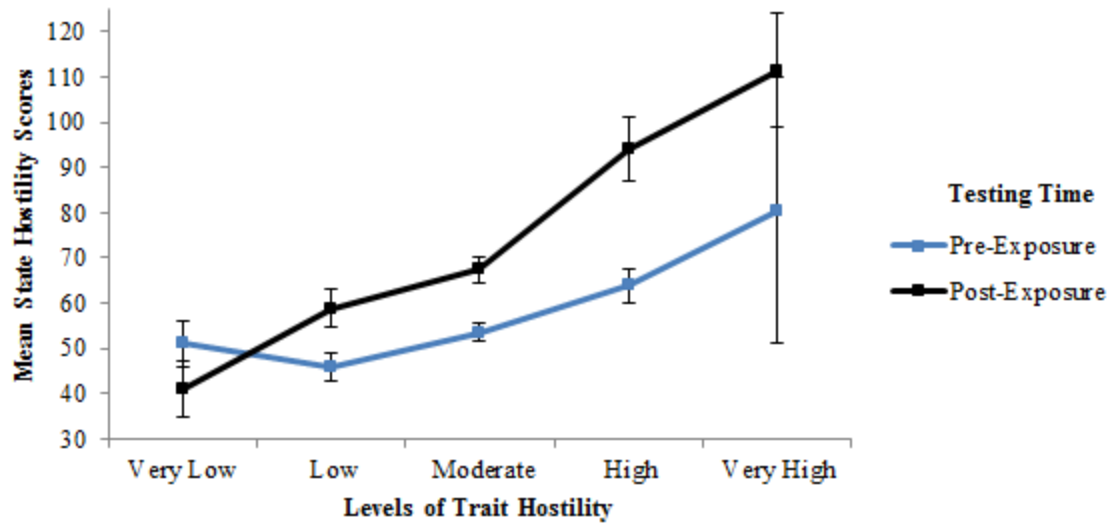


Figure 7. Mean state hostility scores for pre- and post- exposure as a function of trait hostility.

3.3.4 Facebook Questions in the Post-Exposure Questionnaire

Descriptive data were taken from the post-exposure questionnaire for questions relating to Facebook membership and use. A majority of the participants ($n = 58$; 97%) reported having a Facebook account. Of those participants, 64% reported checking their Facebook account several times per day ($n = 37$), and 28% reported checking Facebook once per day ($n = 16$), 7% several times per week ($n = 4$), and 2% once per week ($n = 1$). These results indicate that most of the participants were familiar with Facebook on some level and were able to understand the context in which the Facebook screenshots were displayed.

3.3.5 Cyberbullying Questions in Post-Exposure Questionnaire

The post-exposure questionnaire also provided some descriptive data relating to potential participant roles in cyberbullying activities (i.e., victim, perpetrator, and bystander). The data is displayed in Table 8.

Table 8

Frequencies and percentages of prior experiences as a victim, perpetrator, and bystander according to gender

Role	All			Male			Female		
	N	%	SD	N	%	SD	N	%	SD
Victim	10	17%	.38	6	60%	.41	4	40%	.35
Perpetrator	2	3%	.18	1	50%	.18	1	50%	.18
Bystander	34	57%	.5	16	47%	.51	18	53%	.5

Only 10 participants (17%) reported being a victim to cyberbullying. Most of those participants reported being targeted only 1 to 3 times ($n = 6$; 60%). Fewer participants reported being targeted 8 to 11 times ($n = 2$; 20%), 4 to 7 times ($n = 1$, 10%), or more than 11 times ($n = 1$; 10%). Participants reported that social networking sites and mobile phones were the most common methods used in the instances of victimization ($n = 6$ for both methods; 40%). This was followed by other methods ($n = 2$; 13%), and instant messaging ($n = 1$; 7%). No participants reported being cyberbullied via e-mail. A visual inspection of numbers suggests that victims were slightly more likely to be males than females (6 males vs. 4 females) and bystanders were slightly more likely to be females than males (18 females vs. 16 males). Over half of participants reported being a bystander to cyberbullying ($n = 34$; 57%). Finally, regarding perpetrating

behaviour, one male and one female participant (n = 2; 3%) admitted to being a perpetrator of cyberbullying acts towards others.

The data was analysed further to identify whether the participants who had reported being a victim, perpetrator, or bystander were also members of the other categories (e.g., a participant being both a victim and a bystander). This data is presented in Table 9.

Table 9

Frequencies and percentages of prior experiences as a bystander only, victim only, and combined cyberbullying roles according to gender

Role(s)	All			Male			Female		
	N	%	SD	N	%	SD	N	%	SD
Bystander Only	25	42%	.5	11	44%	.49	14	56%	.51
Victim Only	1	2%	.13	1	100%	.18	0	-	-
Victim and Bystander	7	12%	.32	4	57%	.35	3	43%	.31
Victim, Bystander, and Perpetrator	2	3%	.18	1	50%	.18	1	50%	.18

The above table displays two important results. First, 100% of participants who identified themselves as being a perpetrator also identified themselves as being a victim and bystander.

This suggests that in some cases, those who cyberbully others may have been victims themselves and are often witnesses of cyberbullying behaviours online. Second, out of the 10 participants who reported being a victim of cyberbullying, only one male participant reported being a victim without being a perpetrator or a bystander. Most participants who reported being victims were also bystanders to cyberbullying (90%). A visual inspection of the data suggests a slight gender-related trend in that more females than males were bystanders only to cyberbullying (14 females vs. 11 males). Taken together, these results suggest that often those who have had direct roles in

cyberbullying, meaning a perpetrator or a victim, may have also had experiences within other roles, such as being both a victim and a bystander. None of the participants reported being solely a perpetrator, and only 1 participant out of 10 reported being solely a victim.

3.3.6 Predictors of Increased Levels of State Hostility Post-Exposure

Finally, data on Facebook use and cyberbullying experiences from the post-exposure questionnaire were entered into a regression analysis to determine which variables best predicted post-exposure state hostility. There were eight variables used in the multiple regression: state hostility pre-exposure, gender, exposure condition, trait aggression, cyberbullying experiences as a perpetrator, a bystander, and a victim, and Facebook use. The results are shown in Table 10 below.

Table 10

Predictors of post-exposure state hostility levels

Variable	B	SE	β
State Hostility Pre-Exposure	.63 ***	.12	.42
Gender	-4.21	3.21	.10
Exposure Condition	-19.19 ***	3.35	.45
Trait Hostility	13.13 ***	3.81	.32
Perpetrating Behaviour	-19.19	11.92	.16
Bystander Behaviour	2.39	3.45	.06
Victim Behaviour	1.51	1.42	.12
Facebook Use	.11	.56	.02

*** $p \leq .001$

The model as a whole accounted for a statistically significant amount of variance in post-exposure state hostility scores, $F(8,51) = 16.73$, $p < .00$, $R^2 = .72$. Of the eight variables entered,

exposure condition ($p = .000$), state hostility pre-exposure ($p = .000$), and trait hostility ($p = .001$) each made a significant independent contribution. Of these, exposure condition and state hostility pre-exposure were the best predictors of state hostility scores post-exposure ($p = .000$). Gender, Facebook use, perpetrating behaviour, experiences of victimization, and being a bystander to cyberbullying acts did not predict post-exposure state hostility scores: $p_{gender} > .20$, $p_{Facebook} > .84$, $p_{perpetrator} > .11$, $p_{bystander} > .49$, $p_{victim} > .29$. These results indicate that previous cyberbullying experiences and Facebook use do not predict hostile reactions to offensive Facebook content. This suggests that emotional responses to cyberbullying online are equally accessible to both those with prior experience with cyberbullying and those who have not experienced cyberbullying in any context.

3.4 Discussion

Experiment 2 aimed to identify the extent to which exposure to offensive and non-offensive Facebook content might affect levels of state hostility among uninvolved bystanders. A novel experimental design was employed. Strengths of the study included the use of Facebook as a unique situational variable, controlling for pre-exposure trait and state hostility, and the consideration of gender as well as other extraneous variables such as Facebook use and cyberbullying experiences online.

The key finding to emerge from Experiment 2 was that exposure to offensive cyberbullying content on Facebook increased state hostility levels. A further finding was an interaction between pre-exposure trait and post-exposure state hostility, whereby participants with higher levels of trait hostility pre-exposure reported higher levels of state hostility post-exposure, while those with lower levels of trait hostility reported lower levels of state hostility. No effects of gender

were observed. When taking into account all variables including state hostility pre-exposure, gender, exposure condition, trait hostility, perpetrating behaviour, bystander behaviour, victim behaviour, and Facebook use, only exposure condition type and levels of pre-exposure trait and state hostility significantly predicted participants' level of state hostility post-exposure, with exposure condition and pre-exposure state hostility being the best predictors. These results are reviewed in more detail below.

The condition and trait hostility results corroborate the findings by Anderson (1997), who found that participants reported significantly higher levels of state hostility after viewing movie clips portraying aggressive behaviour. Similar to participants in the studies by Anderson (1997) and Anderson and Bushman (2001), participants who scored highly on the trait hostility scale were also found to score higher on the state hostility. The exposure effects obtained for Facebook are also in line with other studies that have recorded similar effects across a range of mediums including movies, video games, and music (Anderson & Bushman, 2001; Anderson & Carnagey, 2009; Barlett et al., 2008; Hansen & Hansen, 1990), providing further support for the GAM. While the GAM also describes the outcomes of affected internal states, namely appraisal and decision making processes, the current study did not examine the appraisals or decision making processes of increased state hostility. However, knowing that internal states may be influenced by Facebook content as the situational variable, further research may help to identify the types of outcomes determined by aggressive affect related to witnessing cyberbullying content online.

Recent research on participants' emotional responses to exposure to authentic versus fake media violence has found higher levels of empathy among those viewing authentic content (Ramos, Ferguson, Frailing, & Romero-Ramirez, 2013). The medium used in the current research (i.e., Facebook webpages) was entirely user-generated. Participants were presented with Facebook

interactions involving both authentic and fake interactions, with no connections to the participants. Participants were aware that the Facebook users in the authentic pages did exist on the live Facebook website. Therefore, knowing that the offensive screenshots contained authentic displays of aggression, participants may have had increased empathy for the victims of the cyberbullying interactions. If empathy is interpreted as an internal state, then further research would be required to determine the extent to which empathy interacts with levels of state hostility.

By contrast, mediums used in past studies that have tested the predictions of the GAM (e.g., Anderson & Carnagey, 2009; Anderson, 1997) have included exposure stimuli, such as video games and films, that are largely personally dissociated from the viewers themselves. For instance, film and video games often display fictitious content, both in terms of the storyline and the characters portrayed. While the current study used a situational variable more authentic and different from those typically used in previous studies investigating the relation between exposure to violent content and aggression, the results should not necessarily be generalized to all encounters with cyberbullying on Facebook. For instance, the impact on state hostility might differ in situations where bystanders have established relationships with the victim and/or perpetrator involved. To conclude here, results from Experiment 2 support and extend research examining the effects of exposure to aggressive content on viewer state hostility, providing additional support for the GAM. Specifically, Experiment 2 showed that content on Facebook pages may serve as a situational variable prime sufficient to cause shifts in internal psychological states (e.g., affect). However, affect is just one of the internal states within the GAM that can be affected by situational variables. Further research is required to understand the extent to which

utilising Facebook as a situational variable might affect other internal states, such as cognitive or physiological states.

Results from the social networking, Facebook, and cyberbullying post-exposure questionnaire indicated that most participants in the study (97%) were frequent and active users of Facebook. This finding is consistent with New Zealand based surveys with young adults (Smith et al., 2011), where 87% report they belong to a social networking website, primarily Facebook. Furthermore, while participants in the current study were not required to have a Facebook account to be eligible for inclusion in the study, the majority reported they were Facebook users. Membership with the website ensured that participants were familiar with how Facebook operates and the layout of the screenshots used (e.g., personal profile pages versus group pages), thereby enhancing the ecological validity and generalizability of the study.

Results also indicated that one sixth of participants had been a victim of cyberbullying, most commonly through social networking sites and mobile phones and on an infrequent basis. It must be taken into consideration, however, that some cyberbullying victims may be unaware that they are a victim of cyberbullying. For example, if a Facebook group spreads rumours about someone and the victim does not know that the group exists, then the victim may be unaware that they are ever being targeted. Therefore, while 17% of participants identified as having been a cyberbullying victim in the current research, the exact number of cyberbullying victims could be slightly higher. Most of the participants that reported being a victim to cyberbullying had also reported being a perpetrator and/or bystander online, with only one participant reported being solely a victim.

The rates of online victimization reported in the current study were relatively consistent with international rates. For example, in a US-based study by Walker, Sockman, and Koehn (2011)

investigating the prevalence of cyberbullying among 131 undergraduates, 11% of surveyed participants reported being cyberbullied while attending university, and 57% of those had been cyberbullied on less than four instances. However, participants were only asked about cyberbullying experiences while attending university. Therefore, prevalence of cyberbullying victimization may be higher if participants had been asked about all cyberbullying incidences ever experienced as a victim. The number of participants that reported being a victim of cyberbullying in the current study was marginally higher (i.e., 17%), though the current study did not restrict cyberbullying victimization experiences to the university.

These findings do contradict some previous research, with other research reporting higher numbers of perpetrators (Hinduja & Patchin, 2010; Li, 2006, 2007), higher numbers of victims (Li, 2007), and different cyber mediums frequently used in perpetration (Hinduja & Patchin, 2010; Kowalski & Limber, 2007). A majority of the contradicting research sampled younger populations, using students in middle school and high school (Hinduja & Patchin, 2010; Kowalski & Limber, 2007; Li, 2006, 2007). Using a university sample in the current research, these participants may not have been using the Internet in primary and secondary school as frequently as younger students are currently using the Internet. Therefore, there may have been fewer opportunities for the current sample to have been cyberbullied at a younger age.

Also of note, was the additional finding that participants' previous cyberbullying roles and experiences were not related to post-exposure state hostility. It might be expected that those who actively engage in cyberbullying behaviours in a perpetrator role or experiencing victimisation would report higher levels of state hostility post-exposure, compared to non-perpetrators. For example, research studying the psychological characteristics of traditional bullying perpetrators has shown that perpetrators are typically more aggressive than those who do not bully (Olweus,

1993, 1994; Ragatz, Anderson, Fremouw, & Schwartz, 2011). Moreover, some victims of bullying have also been associated with higher levels of aggression (Olweus, 1993; Perry, Kusel, & Perry, 1988). However, as demonstrated in Experiment 2, increased levels of aggressive behaviour among perpetrators and victims may not necessarily be reflected in emotional responses to violent media.

Finally, by assessing the effects of exposure to offensive Facebook content, this study has added to the currently limited research on bystander reactions to cyberbullying behaviours. While much research has concentrated on prevalence rates and experiences relating to perpetrator and victim roles, little research has been devoted to establishing how escalating levels of cyberbullying online might impact uninvolved bystanders. Given the noted effects, Facebook users should be aware that cyberbullying content posted by Facebook friends may directly influence their current affect. Future research should focus on how bystanders react and respond to cyberbullying behaviours because identifying key appraisals and decision processes may help educate Facebook bystanders with the proper tools needed to intervene and prevent future cyberbullying incidences online.

4.0 General Discussion

The studies in this thesis centred on two aims relevant to current issues relating to cyberbullying and the effects of violent media content on aggression. These were: 1) to identify and describe the extent to which cyberbullying exists on Facebook and the severity of the content; 2) to describe the associations between group composition and type of cyberbullying behaviour by examining composition variables such as membership numbers, gender, and member contributions in terms of the number and content of posts; and 3) to determine the impact of exposure to offensive cyberbullying content on Facebook webpages on levels of bystander state hostility, while also examining gender differences and controlling for trait hostility.

While little, if any, research exists on Facebook cyberbullying groups, content, and the potential psychological impacts of offensive content, there is much research to document a strong relation between research on exposure to violent media content and increases in aggression (e.g., Anderson, Deuser, & DeNeve, 1995; Anderson & Dill, 2000; Anderson, 1997; Barlett, Harris, & Bruey, 2008), hostile thoughts (e.g., Anderson et al., 1995; Anderson & Dill, 2000; Anderson, 1997), and arousal (e.g., Anderson et al., 1995; Barlett et al., 2008; Carnagey, Anderson, & Bushman, 2007).

Experiment 1 has highlighted the visibility of offensive content posted by open Facebook groups to members and has provided details on the composition of cyberbullying groups in terms of numbers and gender, as well as content. Experiment 2 has shown that exposure to cyberbullying content on Facebook increases levels of hostile affect among uninvolved bystanders. This effect was particularly evident in those bystanders identified as having high pre-existing levels of trait

hostility. Experiment 2 has also provided additional support for the GAM (Anderson & Bushman, 2002), while extending situational variables to include screenshots of Facebook content.

4.1 Implications for Facebook Users and Communities

Both Experiments 1 and 2 have a number of practical implications. First, high levels of offensive content posted by the identified cyberbullying groups versus the relatively few instances of combatting behaviours observed should raise concerns for the website. Moreover, should a group or member be reported by another member to Facebook security, there is no guarantee that the perpetrators involved will not reoffend. In some instances, Facebook members or groups posting harassing content may receive a warning, with more serious offenders being blocked or reported to local authorities. Facebook is at liberty to determine what consequences, if any, are imposed upon perpetrators. Given the high level of content rated to be offensive that was posted by the cyberbullying groups identified in the current study, it may be prudent to educate reported Facebook members about more positive methods of communication and about the potentially harmful effects of cyberbullying. Aftab (2008) identified the Vengeful Angel as a cyberbullying personality that tries to counter cyberbullying acts by bullying perpetrators, without realizing that by doing so, they are also engaging in bullying behaviour. Retaliative behaviours that could be attributed to the Vengeful Angel were identified theme in Experiment 1. This personality type may need to be made more aware about how their online actions may affect others, and shown the proper channels for reporting cyberbullying, as well as how their behaviour is received by others. Barlińska, Szuster, and Winiewski (2013) examined negative bystander behaviour in relation to empathy. In Study 2, 296 male and female students between the ages of 12 and 18

were exposed to cyberbullying interactions and their empathetic behavioural responses were measured. Specifically, participants had to decide whether to forward or delete messages that contained cyberbullying content about a peer. Participants were found to engage significantly less in negative bystander behaviour after exposed to a 2-minute video displaying parallel situations of a cyberbullying occurrence, how the victim felt, and the effects to the victim's behaviour, compared to participants who did not view the video. Applying the method used by Barlińska and colleagues (2013) to group members that submitted passive contributing content and retaliation in Experiment 1 may elicit an empathetic response and an increase in positive and anti-cyberbullying group posts.

Second, there is a clear need for parents and guardians to increase their awareness of how their children and adolescents use the Internet to connect with others. TRU Research (2012) found that 23% of 1,013 surveyed parents did not monitor their children's behaviour online and a further 22% of parents did not believe that their children can get into trouble online. This is of concern as research suggests that adolescents are becoming increasingly more knowledgeable about hiding their online behaviour from their parents. In 2009, for example, approximately 27% of adolescents had reported hiding their online behaviour from their parents (Cox Communications, 2009); however, in 2012 the rate of hidden online behaviour increased to over 70% (TRU Research, 2012). Given that approximately 22% of adolescents have identified as having engaged in cyberbullying perpetration (Dilmaç, 2009) and the number of adolescents hiding their online behaviour, there is an apparent disconnect between how parents perceive their children to behave online and the extent to which adolescents hide their online activity. The results from this research have highlighted that not only is cyberbullying content readily

available to adolescents on Facebook, but also the ways in which bystanders may be adversely affected by exposure to such content.

4.2 Limitations

Though many precautions were taken with this exploratory research, it is not without its limitations. First, the stimuli presented in Experiment 2 may not be fully representative of the Facebook experience for two reasons. First, the presentation of Facebook screenshots (each displayed for 60 seconds) may have been displayed for a significantly longer period than the time Facebook users typically take to view pages on their own. Research by an advertising network subsidiary of Google, DoubleClick, in 2011 found that Facebook users spend on average 25 minutes in an online session with 38 page views²⁴, which would equate to less than 40 seconds a page (Gruener, 2011). Therefore, average Facebook user behaviour would indicate that Facebook users are typically accessing more pages in a shorter time frame than what they were presented with in Experiment 2. Second, the static display of the Facebook screens takes away all user interactions and forces participants to view predetermined material rather than allowing them choose what content will be viewed on the webpage. Given that Facebook users typically view a high volume of pages in a 25 minute time frame, participants may be scanning or browsing through a significant amount of information, rather than intently reading specific content. Therefore, the effects of exposure to negative content on state hostility in the current study may be inflated.

Third, Experiment 2 lacked the element of familiarity between the participants and the subjects referenced within the displayed Facebook screenshots in Experiment 2. One of the key features

²⁴ These page views are instances where a new page is accessed through the Facebook server.

of Facebook is that users have at some point met the people that they are linked with online. Reports of hostile feelings may be exacerbated in instances where participants know either the victim or the cyberbully being referenced at some level (e.g., an acquaintance, a friend, or a sibling). While it is important to understand bystander effects on strangers, the reported effects should not be extended to all instances of cyberbullying.

4.3 Directions for Future Research

While the current research does provide some insight to the emotional responses to Facebook cyberbullying, as outlined, results may differ when participants know the victim and/or the abuser. Future research should look at emotional responses to Facebook users viewing cyberbullying among their personal social connections. A Facebook web application would be able to access a participant's Facebook friend list and create simulated interactions with those profiles. The use of this web application would create a unique experience for each participant and would potentially result in further changes in levels of hostile affect when the user directly knows at least one of the members in the interaction.

In addition, future research on the composition of cyberbullying groups and the nature of the content posted by these groups should also focus on unintentional cyberbullying behaviours within social networking websites. For example, investigating instances of cyberbullying within Facebook communities that were not intended by the members involved to be particularly harmful or negative would provide insight into the perpetrators involved and into how seemingly harmless interactions may escalate into cyberbullying behaviours that have adverse psychological consequences. This research would be difficult to perform in a systematic fashion, as there is not currently an advanced search engine on Facebook that allows users to

systematically search the content of a group for key words within posts. However, comparisons between groups engaging in intentionally negative acts (such as those identified in Experiment 1) and groups engaging in unintentional cyberbullying behaviours may provide an insight into gender differences in group membership and contributions.

Finally, it may also be important to assess how Facebook users respond to cyberbullying interactions in terms of situation appraisal and subsequent behaviours. While it is valuable to understand how people respond emotionally to these interactions, it is less clear how Facebook users would physically respond to these events when given the opportunity to participate and respond. Given the level of anonymity available on Facebook, it is often usual for Facebook users to respond to cyberbullying content through retaliation without ever revealing their true identity. In addition, it would be relevant to determine what factors predict whether a person intervenes online using positive versus retaliative actions. Previous research on bystander responses to cyberbullying has indicated that direct sympathy with the victim increases the likelihood that the observer will not participate in a cyberbullying interaction (Barlińska et al., 2013). However, much less is known about reactions to cyberbullying events, such as what other factors determine whether a bystander will either perpetuate or intervene.

Research on cyberbullying and social networking is limited to the particular environment that the specific social networking website provides. Facebook and MySpace, for instance, both provide their users with personal profiles and group options; however, future social networking sites may provide completely different types of spaces for their users to interact with each other. It is therefore also imperative that future research on cyberbullying matches the advancements in technology and the changing environments in which social networking users utilize to connect with others.

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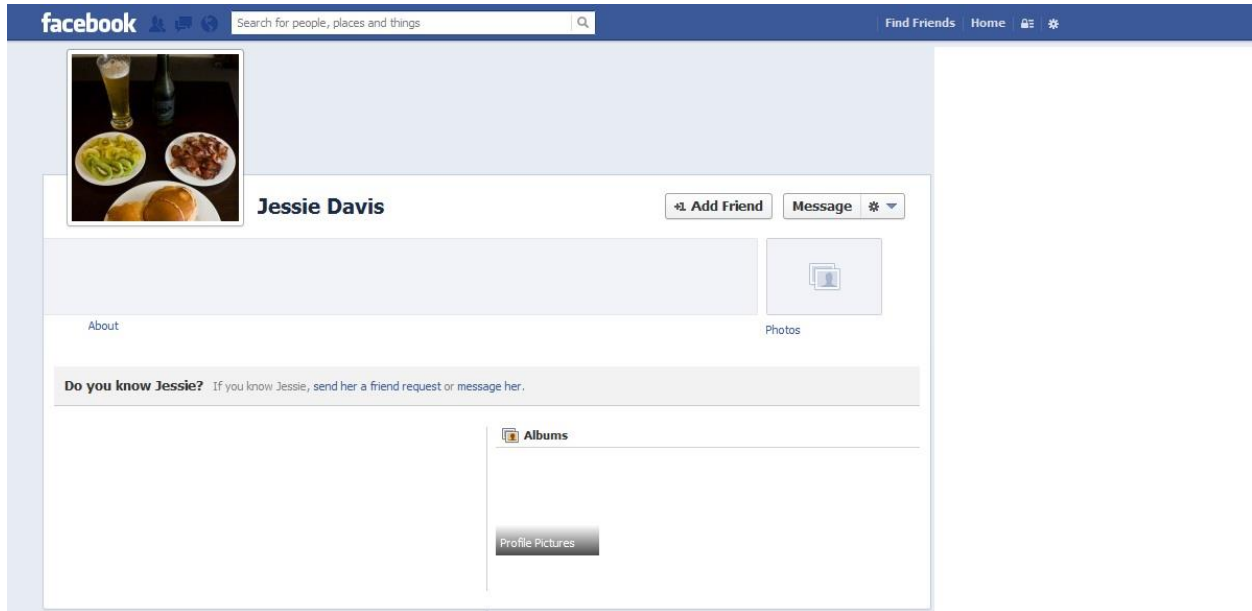
6.0 Appendices

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Appendix A: Facebook profile created and used throughout Experiment 1

Note: This page was used only for the acquisition of open Facebook groups. Upon completion of this research, this account was deactivated.



Appendix B: Search term used that yielded a qualifying open group

Search term used that yielded a qualifying group				
	Female Search Term	Male Search Term	Neutral Search Term	Neutral Search Term (cont.)
1	"is a slut"	"is a cock"	"should die"	"kill that"
2	" is a hoe"	" is a homo"	"fuck a"	"my ex is"
3	"a is a bitch"	"deadbeat"	"gayest"	"needs die"
4	"biggest slut"	"fag"	" is annoying"	"sucks cock"
5	"d is a slut"	"has no penis"	"a needs to die"	"sucks dick"
6	"evil bitch"	"has small penis"	"emo wannabe"	"want to kill"
7	"fat bitch"	"is a bastard"	"fat cunt"	"we all hate"
8	"Fuck Ms"	"is a bellend"	"fuck up"	"we hate a"
9	"i hate mrs b"	"is a bitch"	"has small"	"we hate b"
10	"i hate mrs e"	"is a dick"	"i hate d"	"we hate h"
11	"i hate mrs f"	"is a douche"	"is a cheating"	"we hate"
12	"i hate mrs g"	"is a fag"	"is a cunt"	"will die"
13	"i hate mrs s"	"is a homo"	"is a dirty"	
14	"i hate mrs v"	"is a pedo"	"is a dumb"	
15	"i hate mrs"	"is a penis"	"is a fake"	
16	"i hate mrs."	"is a player"	"is a fat"	
17	"i hate ms p"	"is a prick"	"is a fuck"	
18	"i hate ms"	"is a queer"	"is a jew"	
19	"i hate ms. D"	"is a tool"	"is a liar"	
20	"i hate ms. S"	"is a wank"	"is a loser"	
21	"is a dirty whore"	"is queer"	"is a lying"	
22	"is a dumb bitch"	"is scum"	"is a rat"	
23	"is a fake bitch"	"wannabe gang"	"is a retard"	
24	"is a fat lesbian"		"is a scrub"	
25	"is a skank"		"is a snitch"	
26	"is a sket"		"is annoying"	
27	"is a slag"		"is nasty"	
28	"is a whore"		"is retarded (sic)"	
29	"is butch"		"is so dumb"	
30	"is hoe"		"is stuck-up"	
31	"is skank"		"is stupid"	
32	"is skanky"		"is ugly as"	
33	"is whore"		"is ugly"	
34	"minger"		"is worthless"	
35	"mrs is a bitch"		"join if u hate"	
36	"stupid bitch"		"kill s"	

Appendix C: Example page of terms list presented to raters

Please rate each word based on how offensive you find the term to be. Please start each word with how offensive you believe to be generally. Next, please imagine each scenario where you are a boy/girl and a boy/girl said each of those terms to you. Based on those scenarios, please rate how offensive you find those terms to be.

	How offensive do you find this term?	Imagine you are a BOY and another BOY said this term to you.	Imagine you are a BOY and a GIRL said this term to you.	Imagine you are a GIRL and another GIRL said this term to you.	Imagine you are a GIRL and a BOY said this term to you.
hope *target name* dies	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
hope your mom dies	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
i got a blade for each of his organs	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
im gonna shit on his grave	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
kill him and eat him	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
kill people	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
kill their family	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
kill themselves	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
lets kill this bitch	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
maybe she'll die from stds she gave people	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
murder him in a slow painful death	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
needs to be killed	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
no one would miss him	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
pushed off a cliff	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
put dog's like him down at pound for free.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
put him in the morgue	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
should hang themselves	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
take a gun and finish him	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
we're gonna kill *name*	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Appendix D: Ethical Approval for cyberbullying research



HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2012/53

27 June 2012

Andrea Neff
Department of Psychology
UNIVERSITY OF CANTERBURY

Dear Andrea

The Human Ethics Committee advises that your research proposal "Cyber bullying and Facebook: turning bystanders into aggressors?" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 26 June 2012.

Best wishes for your project.

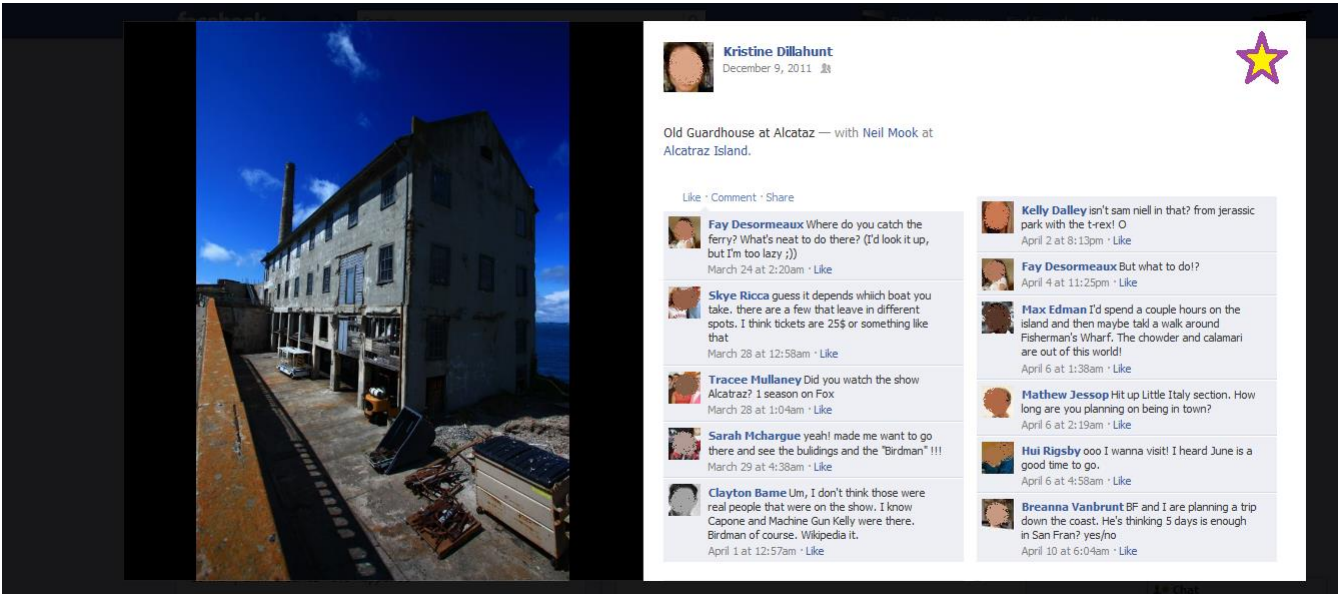
Yours sincerely

A handwritten signature in black ink, appearing to read 'Michael Grimshaw'.

Michael Grimshaw
Chair
University of Canterbury Human Ethics Committee

Appendix E: Example of a Neutral Photo

Note: Screenshot not to scale.



Appendix F: Example of an Offensive Interest Page and an Offensive Personal Profile

Example of an offensive interest page:

Note: Screenshot not to scale.

The screenshot shows a Facebook page with a blue header. The page title is "my ex is a class A ASSHOLE BASTARD. SCREW THEM!". The page has a "Like" button and a "Create a Page" button. The main content area displays a list of posts from users who have liked the page. The posts are as follows:

- Mayme Bagnall** (April 15): "my ex is a class A ASSHOLE BASTARD. SCREW THEM! Patrick Lane in Nevada is a lying scumbag deadbeat! Keeps on having babies and walking away from them POS"
- Etta Weed** (September 28, 2011): "my ex is a class A ASSHOLE BASTARD. SCREW THEM! Owen Brayton Ayala 9097332332"
- Larissa Gentz** (November 10, 2011 at 5:49am): "What did he do? His name is stupid ahha i called and told him so. i have also taken the liberty of posting his name and number around camprus telling everyone to steer clear."
- Etta Weed** (November 10, 2011 at 7:03am): "1. he cheated 2. he lied. 3. he put his dick all over town"
- Carmen Galletti** (July 30, 2010): "my ex is a class A ASSHOLE BASTARD. SCREW THEM! HELL YES!!!! FINALLY A PLACE TO PUT OUR EXES. illegal to put exes in jail so this will be like facebook jail. i hate Max Neuman. HE IS SO SICK HE PROBABLY HAD CHILD PORN ON HIS COMPUTER."
- Zoila Wolaver** (October 1, 2011): "my ex is a class A ASSHOLE BASTARD. SCREW THEM! 2 pricks spring to mind!! Darron Hicks in Eugene and Greg Thomas in Lake Oswego. Fuck those fucking fuckers. Make sure you double up on birth control! They are assholes who need to have a 12 gauge put to their heads!"
- Dean Wood** (August 14, 2011): "my ex is a class A ASSHOLE BASTARD. SCREW THEM! this club better not be for just man hating. Ive seen you hoes do some pretty shitty things to ppl. Jessie Manderly at 2021942092 is a twotiming cunt who will take you for every dime youve got because SHES A BITCCH. die woman die"
- Lucretia Levene** (August 15, 2011 at 3:22pm): "your not going to find a lot of love here. we stick together. your probably a prick who got what he dserved. fuck you and your sexist attitudes towards women."
- Lloyd Macintyre** (August 15, 2011 at 7:11pm): "Bitches aint shit. They shouldn't have gotten so independent. Such a double standard. It's cute when they hit us, but we hit back and it's violence? bros before hoes, bro. I'm going to go off the handle tonight just to make a point. Jean better watch out is all I'm saying."
- Jon Gulbranson**: "women are trouble. they fuck with your mind and then kick you to the curb when somethin better comes along. Jenny filmore in dallas is actually a hooker. i joke not she actually hookers herself and claims to be first class. check that shit if you dont believe me! !!@!"

On the right side of the page, there is a sidebar with a "Now" section, a "April" section, and a "Born" section. A yellow star icon is visible on the right side of the page.

Example of an offensive personal profile:

Note: Screenshot not to scale.

facebook

Search

Find Friends Home



Wall

Info

Photos

Friends

Friends (98)

 Jacob Dudas

 Sarah Greenman

 Ella Heffington

 Keith Bernardino

 Claire Carlyle

 Louise Credle

 Latisha Frizell

 Marci Armes

 Derek Terwilliger

 Candace Jablon...

Report/Block...

Mike Garfield

IT guy at Racco Enterprises Studied at Wheeling Jesuit University Lives in Elkins, West Virginia

Add Friend

Message

Wall

 **Mike Garfield**

I am shocked and appalled at Obamas support of gay marriage. Because homosexuality is wrong! The Bible clearly states it is sin. The book quotes it the same as lying, killing, cheating, and theft. I speak directly to my friend Amy now. You will burn forever if you continue with your choices. You will remain wicked until you repent.

Share · April 26 at 10:23am ·

8 people like this.

 **Vicki Calhoun** Amen brother. It's unnatural and disgusting. I'm on board with Santorum when he said it's like peadofiles and people who have sex with animals.
April 26 at 2:01pm

 **Scott Whitworth** Uhhhm you Christians are bigots. Now, I may not live in the hick states but where we're from, we treat people fairly. You Christians all can marry your sisters, stone your women, and not get haircuts. Seriously, you guys are so dumb.
April 28 at 4:25am

 **Pam Barclay** Scott- dear you cant equal haircuts with same sex screwing. one is a moral sin and the other is a haircut! I dont think i need to explain myself or my beliefs.
April 28 at 10:52am

 **Mike Garfield** There are a lot of things we have accepted as wrong (such as slavery). But other things God is VERY clear about as being wrong. Men + Women = ONLY acceptable union
April 28 at 11:13am

 **Sam Crosby** stop hiding behind the damn bible. it's a fucking book. people are people no matter who they are. you guys are retarded and need to come into the 21st century
April 28 at 11:24am

 **Ainsley Petit** There is only 1 God and He is glorious. The Bible calls for Adam and Eve, not Adam and Steve!! C'mon y'all! We live in the modern world, but some things never change. Gays are lucky that sex isn't outlawed.
April 28 at 12:54pm

 **Karah Friggs** Why are you even on this thread if you are clearly so upset by it? We Christians ban together and support one another to convey the word of the Lord. He rewards those who follow his words and obey his will. Homosexuals will burn in Hell because they have chosen- yes, chosen- to do waht they do.
Saturday at 4:10am

 **Brad Haithes** posted a link.

 **Leviticus 18:22**
"You shall not lie with a male as with a woman. It is an abomination. 23

Share · April 17 at 6:29am ·

 **Sandi Seymore** Written proof of the word! Gays are sinners and their actions are sinful. They will be punished for their wickedness.
April 18 at 4:12pm

 **Bill Zeigler** It's a known fact that children do better in a male/female parent household. If we give homos rights to raise children the whole country will be in shambles within 5 years. Let's cage them all up inthe zoo with the other animals..

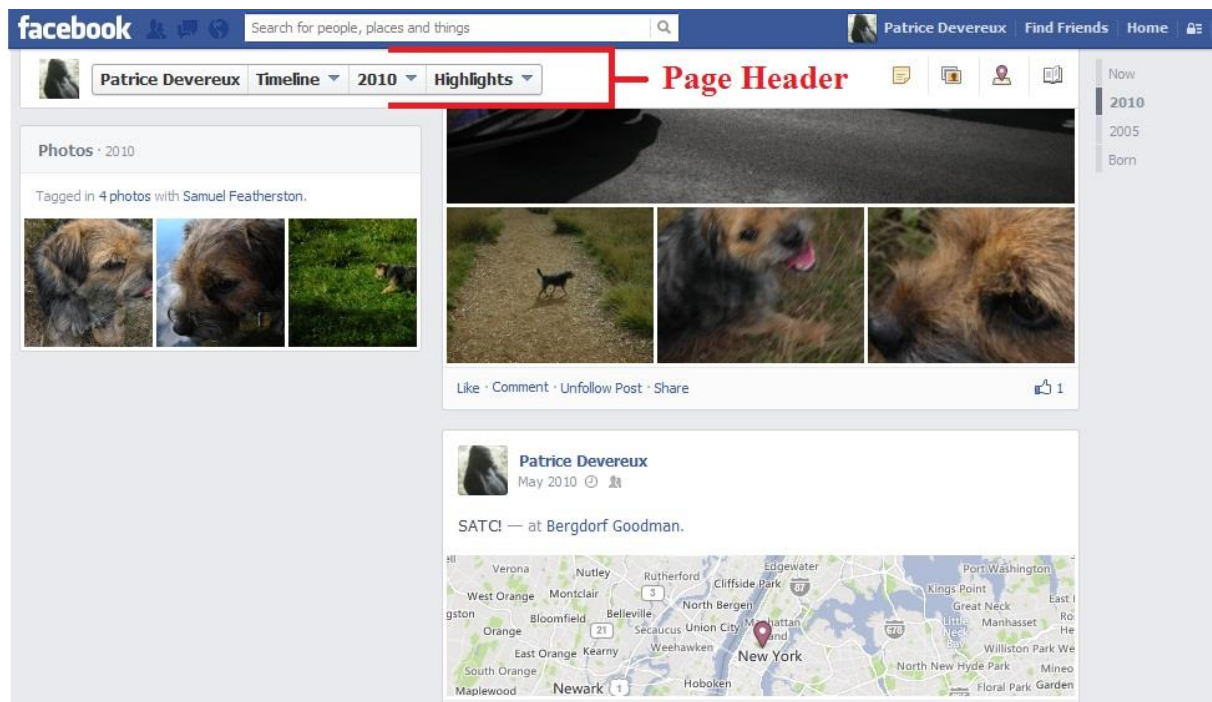
Appendix G: Examples of the old and new Facebook page layouts

Example 1 below displays the profile page single-column layout. As the user scrolls down, the page header and sidebar would no longer be visible. Example 2 below displays the new two-column layout. As the Facebook user scrolls down, they would be able to continually see the page header, knowing that they are viewing posts from 2010 on Patrice Devereux's timeline.

1.



2.



Appendix H: State Hostility Scale (Anderson et al., 1995)

Current Mood				
Please indicate the extent to which you agree or disagree with each of the following mood statements.				
Use the following 5 point rating scale. Write the number corresponding to your rating on the blank line in front of each statement.				
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
___ I feel furious.		___ I feel like I'm about to explode.		
___ I feel willful.		___ I feel friendly.		
___ I feel aggravated.		___ I feel understanding.		
___ I feel tender.		___ I feel amiable.		
___ I feel stormy.		___ I feel mad.		
___ I feel polite.		___ I feel mean.		
___ I feel discontented.		___ I feel bitter.		
___ I feel like banging on a table.		___ I feel burned up.		
___ I feel irritated.		___ I feel like yelling at somebody.		
___ I feel frustrated.		___ I feel cooperative.		
___ I feel kindly.		___ I feel like swearing.		
___ I feel unsociable.		___ I feel cruel.		
___ I feel outraged.		___ I feel good-natured.		
___ I feel agreeable.		___ I feel disagreeable.		
___ I feel angry.		___ I feel enraged.		
___ I feel offended.		___ I feel sympathetic.		
___ I feel disgusted.		___ I feel vexed.		
___ I feel tame.				

Appendix I: Irritability Scale (Caprara et al., 1985)

Irritability Scale

(self-description questionnaire; C = control items)

1. I easily fly off the handle with those who don't listen or understand.
2. I am often in a bad mood.
3. Usually when someone shows a lack of respect for me, I let it go by. (C)
4. I have never been touchy. (C)
5. It makes my blood boil to have somebody make fun of me.
6. I think I have a lot of patience. (C)
7. When I am irritated I need to vent my feelings immediately.
8. When I am tired I easily lose control.
9. I think I am rather touchy.
10. When I am irritated I can't tolerate discussions.
11. I could not put anyone in his place, even if it were necessary. (C)
12. I can't think of any good reason for resorting to violence. (C)
13. I often feel like a powder keg ready to explode.
14. I seldom strike back even if someone hits me first. (C)
15. I can't help being a little rude to people I don't like.
16. Sometimes when I am angry I lose control over my actions.
17. I do not know of anyone who would wish to harm me. (C)
18. Sometimes I really want to pick a fight.
19. I do not like to make practical jokes. (C)
20. When I am right, I am right.
21. I never get mad enough to throw things. (C)
22. When someone raises his voice I raise mine higher.
23. Sometimes people bother me just by being around.
24. Some people irritate me if they just open their mouth.
25. Sometimes I shout, hit and kick and let off steam.
26. I don't think I am a very tolerant person.
27. Even when I am very irritated I never swear. (C)
28. It is others who provoke my aggression.
29. Whoever insults me or my family is looking for trouble.
30. It takes very little for things to bug me.

Appendix J: Pre-Exposure Questionnaire

1. How often do you use the internet?
 - ☐ Once a month or less
 - ☐ Once a week
 - ☐ Several times per week
 - ☐ Every day
 - ☐ Several times per day
2. What do you primarily use the internet for?
 - ☐ News
 - ☐ Schoolwork
 - ☐ Social Networking
 - ☐ E-mail
 - ☐ Gaming
 - ☐ Online Shopping
3. How many hours do you spend on the Internet?
 - ☐ Less than 1 hour
 - ☐ 1-3 Hours
 - ☐ 3-6 Hours
 - ☐ More than 6 hours
4. In which of the following settings do you *most frequently* use a computer to access the Internet?
 - ☐ Cybercafé or other setting that charges for wireless
 - ☐ At the library
 - ☐ At home
 - ☐ At a friend's home
 - ☐ At school or work
5. Using the Internet can take time away from other activities. What do you take time out from to use the computer? (*Please check all that apply.*)
 - ☐ Studying
 - ☐ Eating
 - ☐ Socializing
 - ☐ TV
 - ☐ Exercise/Gym routines
 - ☐ Sleeping
 - ☐ Other
6. How many hours of sleep per night do you get?
 - ☐ Less than 5 hours
 - ☐ 5-7 hours
 - ☐ 8-10 hours

- Over 10 hours

7. How alert do you feel during the day?

- I feel like I need a nap to get through the day
- I am occasionally tired
- I feel alert
- I feel wide awake, usually with too much energy

8. Around what time do you go to bed on a weekday?

- Earlier than 10 PM
- 10 PM-11 PM
- 11 PM-Midnight
- Midnight-1AM
- Later than 1AM

9. Around what time do you wake up on a weekday?

- Earlier than 7 AM
- 7 AM- 8 AM
- 8 AM- 9 AM
- 9 AM- 10 AM
- Later than 10 AM

10. When you are stressed, how do your sleeping habits change?

- I sleep more
- I sleep less
- My sleeping habits do not change

Appendix K: Post-Exposure Questionnaire

1. What is your gender?
 - ☐ Male
 - ☐ Female
2. What is your age? ____
3. Do you have a Facebook account?
 - ☐ Yes
 - ☐ No
4. How often do you check your Facebook account?
 - ☐ Once a month or less
 - ☐ Once a week
 - ☐ Several times per week
 - ☐ Every day
 - ☐ Several times per day
5. How many hours per week do you spend on Facebook?
 - ☐ Less than one hour
 - ☐ 1-3 Hours
 - ☐ 3-6 Hours
 - ☐ Over six hours
6. How many hours per day do you spend on Facebook?
 - ☐ Less than one hour
 - ☐ 1-3 Hours
 - ☐ 3-6 Hours
 - ☐ Over six hours
7. Based on the following activities, which do you perform the most on Facebook? (Please rank your top three choices: 1=first choice, 2=second choice, and 3=third choice)
 - ___ Play games
 - ___ Chat via Facebook chat / Message friends
 - ___ Poke/Nudge friends for fun
 - ___ Share videos/links of interesting site
 - ___ Post an opinion/thought/statement
 - ___ Date online/Look for singles
 - ___ Scroll the newsfeed
 - ___ Look at friends' pages
8. How many Facebook friends do you have?
 - ☐ Less than 100
 - ☐ 100- 200
 - ☐ 200-300
 - ☐ 300-500

- Over 500

9. Which, if any, other social networking websites do you use? *(Please check all that apply.)*

- ☐ MySpace
- ☐ Twitter
- ☐ Google +
- ☐ Bebo
- ☐ Friendster
- ☐ LinkedIn
- ☐ Tumblr
- ☐ Other

10. Have you ever been a victim of cyberbullying? Cyberbullying is defined as “willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices.”

- Yes
- No

11. On how many separate occasions have you been cyberbullied?

- 1-3 instances
- 4-7 instances
- 8-11 instances
- Over 11 instances

12. Through what mediums have you been cyberbullied? *(Please check all that apply.)*

- ☐ E-Mail
- ☐ Instant Messaging
- ☐ Social Networking (e.g. Facebook, MySpace,)
- ☐ Mobile Phones
- ☐ Other

13. Have you ever been a perpetrator of cyberbullying?

- Yes
- No

14. Have you ever been a bystander to cyberbullying? A bystander to cyberbullying means that you were neither the victim nor the perpetrator, but witnessed the act (e.g. seeing a mean Facebook post directed at someone else).

- Yes
- No

Appendix L: Facebook Use Composite Score

Responses to the following questions were summed and converted to composite scores. The number of points associated with each answer appears in parentheses.

- 1) Do you have a Facebook account?
 - a. Yes (1)
 - b. No (0)

- 2) How often do you check your Facebook account?
 - a. Once a month or less (Not scored as no participants chose this answer)
 - b. Once a week (1)
 - c. Several times per week (2)
 - d. Every day (3)
 - e. Several times per day (4)

- 3) How many hours per week do you spend on Facebook?
 - a. Less than one hour (1)
 - b. 1-3 Hours (2)
 - c. 3-6 Hours (3)
 - d. Over six hours (4)

- 4) How many hours per day do you spend on Facebook?
 - a. Less than one hour (1)
 - b. 1-3 Hours (2)
 - c. 3-6 Hours (3)
 - d. Over six hours (4)

- 5) How many Facebook friends do you have?
 - a. Less than 100 (1)
 - b. 100- 200 (2)
 - c. 200-300 (3)
 - d. 300-500 (4)

Appendix M: Victim Cyberbullying Experiences Composite Score

Responses to the following questions were summed and converted to composite scores. The number of points associated with each answer appears in parentheses.

- 1) Have you ever been a victim of cyberbullying? Cyberbullying is defined as “willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices.”
 - a. Yes (1)
 - b. No (0)
- 2) On how many separate occasions have you been cyberbullied?
 - a. 1-3 instances (1)
 - b. 4-7 instances (2)
 - c. 8-11 instances (3)
 - d. Over 11 instances (4)
- 3) Through what mediums have you been cyberbullied? (*Please check all that apply.*)
 - a. E-Mail (1)
 - b. Instant Messaging (1)
 - c. Social Networking (e.g. Facebook, MySpace,) (1)
 - d. Mobile Phones (1)
 - e. Other (1)